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*Her Majesty's Office of Works and Public Buildings.**

IN the early years of William IV. the Commission of Woods, Forests, and Land Revenues, and the Office of the Surveyor-General of his Majesty's Works and Public Buildings were abolished. The Office of Woods, Forests, Land Revenues, Works, and Buildings was constituted. That Office by an Act of Parliament (2nd and 3rd Victoria, c. 80) was empowered to raise money for making additional thoroughfares in the metropolis. Another Act (14th and 15th Victoria, c. 42) passed in 1851 divided the department into two: the "Office of Woods, Forests, and Land Revenues," and "her Majesty's Office of Works and Public Buildings." The latter alone is now presided over by a First Commissioner, who is necessarily a member of Parliament, and who sometimes, but rarely, has a seat in the Cabinet. In 1855 the Metropolitan Board of Works was constituted under the provisions of the Metropolis Local Management Act; and the execution of improvements, intrusted to her Majesty's Office of Works until 1855, was then transferred to the new representative board. The Surveyor to her Majesty in relation to metropolitan improvements was Mr. (afterwards Sir) James Pennethorne; and he had been largely employed since 1843 by the twin Department of Woods and Works—having been placed on what is officially called the Establishment in 1840 as joint-surveyor and architect with Mr. Chawner. After the retirement of Mr. Chawner he continued to act for the Department; and he was prohibited from taking private practice. After the ultimate division of the Woods and Works he remained a professional adviser to the former and the technical factotum of the latter. The Government, however, about 1855–56 got to entertain a just suspicion that the Office of Works was not the valuable institution which the Civil Service Estimates of the time doubtless led people to suppose. Perhaps it put out a great deal of the work which its technical assistants were paid to perform. Perhaps many of the little jobs thrust upon Mr. Pennethorne, over and above his stipulated duties,—and duly paid for by the nation,—were really duties devolving upon the salaried officers of the Department; but of that fact, impossible to prove after more than a score of years, it is needless to speak. A generation ago, a public office was not the focus of energy and despatch it is now! Had "Jacob Omnium" had occasion to inquire into the organisation of establishments in Whitehall other than the "Palace Court,"—immortalised by the imperfect orthography, the indignant and rugged eloquence of "Policeman X,"—it is likely that the reform of the Office of Works would not have been delayed until a comparatively recent period. In 1856 Sir B. Hall thought he could remedy its deficiencies: he presented Mr. W. S. Inman, who bore the title of "Surveyor of Works," with a retiring allowance, as compensation for the pretended abolition of his office.* From the ashes of abolition rose almost immediately another Surveyor of Works. Mr. (now Sir) Henry Hunt was then appointed Surveyor of Works and Public Buildings with a salary of, in round numbers, 20*l.* a day, and the right of private practice. That is to say, he was engaged to attend one day a week, the remuneration for which was 1,000*l.* per annum. To Mr. Hunt's honour he often attended several days in one week. It is equally to his advantage that for years hardly a square foot of land has been acquired by her Majesty's Commissioners of Works without his assistance; and he now draws 1,200*l.* per annum without prejudice to the private and official emoluments of the firm of which he is the head.

An inquiry into matters connected with the Office of Works was held in 1859; and Mr. Pennethorne afterwards got to be styled "Salaried Architect and Surveyor"—his name being thus qualified in the Estimates of 1868–69. His duties partly consisted in advising on general questions relating to Works and Public Buildings; but, oddly enough, "the forming a judgment upon the designs of public buildings and controlling their execution" formed no part of his salaried duties. The oddest thing of all, however, remains; and it is to be found in "A Copy of Papers relating to the recent Changes in the Establishment of the Office of Works." It is a return ordered by the House of Commons on the 19th of July, 1869, and signed by Mr. Ayrton. Therein is the report of a Committee, consisting of Mr. G. A. Hamilton and Mr. W. H. Stephenson, both Treasury officials, and Mr. A. Austin, late the Secretary to the Office of Works. Before quoting from this report we must refer to what happened after the resignation, from ill-health, of this last-named gentleman on the 1st of January, 1869. Mr. Austin had been aided by an Assistant-Secretary, Mr. George Russell. Those two gentlemen, with Mr. Pennethorne and Mr. Hunt, had long formed the principal parts of the machine called the "Office of Works." Mr. Layard, then the First Commissioner, thought that a change would accrue to the benefit of the Department: he substituted for the original Secretary and the original Assistant-Secretary two new Secretaries, one of whom was to combine the duties performed respectively by Mr. Austin and Mr. Russell—duties which related principally to clerical and financial matters. The other was to be intrusted with the supervision of architects' plans and estimates and with the superintendence of building works. The Lords of the Treasury consented to this arrangement. Mr. George Russell was promoted to be "Secretary," and Mr. James Fergusson, the well-known historian and archæologist, was made "Secretary of Works and Buildings." Mr. Fergusson accepted the office under the impression that he was to be simply the professional adviser of the First Commissioner; that he was to advise with regard to designs, with regard to expediency, and also with regard to expense, but that he was not to be burthened with secretariat duties. He found, however, that about half of the ordinary duties of the original Secretary's office devolved upon him, and that in the absence of the Secretary, the Secretary of Works was expected to perform both his own and his colleague's duties. Mr. Russell also complained of the incubus which the supposed reform had thrown upon his own shoulders; and both were heard in a special inquiry afterwards held.

The oddest thing, however, to which we alluded just now, is that though Mr. Pennethorne was still the acknowledged "Salaried Architect," though Mr. Hunt was already the principal "Surveyor," Messrs. Hamilton, Stephenson, & Austin stated in their report that it rested neither with Mr. Pennethorne nor Mr. Hunt to supply the defect in the Office of Works,—a defect intended to be met by the appointment of Mr. Fergusson. "We consider," said they, "that the First Commissioner requires the aid of an officer conversant in a high degree with architecture, in reference to questions connected with existing or contemplated buildings." They recommended that the post held by Mr. Fergusson should be altered from one of "Secretary" to one of "Inspector," and that instead of 1,000*l.* a year he should receive 750*l.* a year, which they considered to be adequate remuneration. The First Commissioner, in a memorandum thereon, attached Mr. Fergusson to the Office of Works under the title of "Inspector of Public Buildings and Monuments," and Mr. Layard's memorandum* bears the date of March 11th, 1869. On the 16th of the same month, in the same year, the same First Commissioner addressed a letter to the Treasury to inform "My Lords" that in Mr. Layard's opinion, the office of Salaried Architect to the Department should cease to exist. "My Lords" sanctioned the modification of

* See p. 859, *ante*: "The Story of the Government Offices."

* In the Estimates for 1877-78 the names of Mr. W. S. Inman and Mr. C. Jayne appear together. Both retired at the age of sixty, in consequence of the abolition of their offices—the latter twenty years after the former. Mr. Inman, appointed at the age of fifty-three, had seven years and a half of service, and received a pension of 533*l.* 6*s.* 8*d.*; Mr. Jayne had eighteen years of service, and received a pension of 83*l.* 6*s.* 8*d.* Both were "surveyors," and Mr. Jayne was an architect.

* Mr. Layard's concluding words are:—"Mr. Fergusson's office must be considered an entirely new one, yet as one imperatively required for the public service. . . . . Had such an officer been connected with the Office of Works, many things which have brought discredit upon the Department might have been avoided."

Mr. Fergusson's appointment, but refused to alter his title; "My Lords" endorsed the abolition of Mr. Pennethorne's office; "My Lords" approved the appointment of Mr. Hunt when occasion should arise to purchase land at the usual professional rate of percentage; and they fixed his retaining fee at 750*l.* a year.

Only one tangible result followed: the Secretary obtained the aid of an Assistant-Secretary, and Mr. George Russell's secretariat relapsed into its former integrity. Mr. Fergusson performed the duties of his amended position for a very short time. Soon after the entry of Mr. Ayrton to the Department, as First Commissioner, Mr. Fergusson resigned. He had even too long exchanged the lettered ease of a library stored with artistic and intellectual wealth for the official occupation of a disused bedroom in Whitehall-place; he hesitated to endure the possibility of a succession of masters, such as, for even a short time, he had encountered. Mr. Pennethorne submissively acquiesced in the abolition of an office he had filled during a part of forty years devoted to the public service; or accepted his discharge. He respectfully requested the Lords of the Treasury to place on record that he retired with honour, and only in consequence of the abolition of his office.

MR. A. B. MITFORD.

After the resignation of Mr. Fergusson the post of "Secretary of Works," altered by Mr. Layard to "Inspector," reconfirmed by a higher power as "Secretary," was filled under the style of "Director of Works" by Capt. Douglas Galton, R.E.. Thus the two chiefs, one clerical and financial, the other technical and artistic, introduced by Mr. Layard's attempted reform, were seen in actual working order. It lasted for a time. Mr. Algernon B. Mitford succeeded Mr. George Russell,* and then it was discovered,—

"Two stars keep not their motion in one sphere."

The Director of Works, after a few years' service in that capacity, retired, at the age of fifty-three, and in the receipt of 1,500*l.* a year, on compensation allowance of 1,000*l.* per annum. The new Secretary remained master of the situation; and since April 23rd of last year, her Majesty's Office of Works has been unadorned with any influential technical adviser either of architectural or engineering antecedents. Mr. Mitford now combines in his own person the influence originally possessed by Mr. Austin, and the technical authority it was hoped to see exercised by Mr. Fergusson. Except that the staff of the Department is now really doing the duties it has undertaken to do, the Office of Works is not artistically so well off now as it was twenty-five years ago, when its technical business was executed by outsiders, and its chiefs had the advantage of an accomplished architect's advice. This, however, may be deemed a matter of opinion, for the present Permanent Secretary may be thoroughly equal to the duties he in his isolation is expected to perform. It may be, therefore, useful to examine the probable chances of Mr. Mitford responding to hopeful anticipation.

Like Thackeray's hero in the "Mayfair Lovesong," Mr. Mitford was a Foreign Office clerk. In the recent proceedings of the very latest Select Committee which has discussed the concentration of the Public Offices,—having regard to economy and scientific arrangement,—he himself has told us of his juvenile delight in the advantages of the eight private houses which originally formed the Foreign Office, that is to say, the eight houses condemned by Mr. Decimus Burton in 1839; by Messrs. Inman & Phipps, in 1854; by Mr. Pennethorne, in 1855-6,—those same eight houses, partly removed after the completion of the new building by Sir Gilbert Scott. "We, clerks," said the now Permanent Secretary to the Office of Works, "were in the best working-rooms that men could possibly desire." Soon after that period of early contentment Mr. Mitford was transferred, in a small diplomatic capacity, to Japan, and he was at Yokohama in 1865. That in this present year he ought to have been *at least five years* in the Office of Works we are constrained to believe from the fact that his salary is raised to the maximum of 1,500*l.* a year; but in the year 1874 Mr. George Russell was still the Secretary, and therefore Mr. Mitford could not at that time have entered upon the duties of his high office.* In the midst of a certain perplexity, resulting from this doubtless ignorant discovery, we suppose Mr. Mitford to have suffered a comparatively long period of social exile at a spot some twenty-five days east of Calcutta, which capital is, at the quickest rate of postal delivery, twenty-one days distant from London; and we know that his book called "Tales of Old Japan" has obtained circulation. But we certainly should not expect an excellent Japanese scholar, like Mr. Mitford, to write a treatise on the Decline or Progress of Architecture in England during the last twenty years, or even to explain the official method of constructing public buildings. A Select Committee thinks otherwise; and on June 5th last the following colloquy ensued within the walls of St. Stephen's:—

"MR. GERARD NOEL.—With regard to the unsuitability of the new public buildings . . . . would you state whether any complaints have come to the Office of Works.

MR. MITFORD.—We have had constant complaints both from the Home Office and the Colonial Office.

MR. W. H. SMITH.—Is there a single instance within your knowledge in which a new building, erected within the last twenty years, has proved to be more convenient than, or equally convenient with, the old building which it replaced?

MR. MITFORD.—*No, I do not know of any one.*

MR. W. H. SMITH.—Or equally healthy?

MR. MITFORD.—*Precisely so;* I think I may make one exception to that rule. I should say that the new Post Office in St. Martin's-le-Grand is an admirable building, and far more healthy than the old Post Office was. [The building was designed by the architects of the Department.]

MR. REED.—Does the First Commissioner give out a contract for a public building and then preserve no control over the erection of that building?

MR. MITFORD.—Where an architect has been appointed for a building, he is considered as *quoad hoc*, an officer of the Board of Works.

MR. REED.—Does the Government employ no overseer or officer of its own to see whether the architect performs his part of the duty?

MR. MITFORD.—It employs no overseer.

Mr. BERESFORD-HOPE.—Is it impossible that the Department should cherish the same feeling of responsibility that a private man does? You tax the architect with deficient responsibility, but has not the Department something to blame itself for?

Mr. MITFORD.—I think not, because hitherto it has been nobody's business to do it.

Mr. BERESFORD-HOPE.—You do not object to the employment of a trained architect to design the building, which has become the custom of late years, but you do object to his being substituted for the permanent officers of the Department in the practical arrangements?

Mr. MITFORD.—If you were building a new War Office or a new Admiralty, it would be infinitely better built, and more satisfactory in every way, if it were built in the Department, and if our own surveyors were to draw the plans. There are no men so thoroughly cognisant of all the requirements of public departments. They are practically architects; the only *additional expense involved would be the hiring of a few temporary draughtsmen*,† and you would have a thoroughly satisfactory building.

Most of Mr. Mitford's evidence was in this strain. A part of his duty is to coach Mr. Gerard Noel (the present First Commissioner), and "our own surveyors" coach *him*, in departmental technicalities. Whether the country gets back an adequate return for the money spent on Select Committees engaged in extracting answers to questions in which the witnesses themselves are personally interested, is altogether another thing. Mr. Mitford, about fifteen years ago, was part of the London *jeunesse dorée*,—taken in a spiritual, not a material, sense,—and "*très bien vu*," in the coveted seclusion of some ancestral houses. Yet he is gravely consulted about a difficulty which still puzzles experts whose lifetime has been devoted to its scientific consideration. Moreover, we doubt the utility of examining and cross-examining, in purely home matters, a gentleman who has expended, however honourably, the larger number of his years of discretion at Yokohama, in Japan.

THE ACTUAL BUILDING FORCE.

The Civil Service estimates for the official year 1877-78‡ are before us; from these, and a slight practical acquaintance with the routine of a Works Department, we can obtain an insight into the present condition of the Government Building force. Of the non-technical officials there are as follow:—

1	First Commissioner, at a salary per annum of...	£2,000
1	Secretary	1,500
1	Assistant-secretary	850
1	Private secretary	150
2	First-class clerks	1,050
1	Clerk in charge of accounts	419
6	Second-class clerks	2,157
15	Third-class clerks	2,415
14	Clerks of the Lower Division	1,473
5	Copyists	400
1	Chief examiner of accounts	625
5	Assistant-examiners	1,813
9	Junior examiners	1,558
1	Storekeeper	150
1	Superintendent for the supply of coals and firewood	300
1	Superintendent for the supply of candles and oil	250
	Commission of Receiver, &c.	750
		£17,810

Then for what may be called the household, we find:—

1	Office-keeper	£150
9	Messengers	518
1	Coal porter	78
4	Servants	181
3	Charwomen	94
		£1,021

Then for the technical staff, or rather that part of it which is on the Establishment:—

1	Consulting surveyor	£1,200
3	Surveyors, first-class	2,930
2	Surveyors, second-class	1,171
7	Assistants to first-class surveyors	1,766
3	Assistants to second-class surveyors	696
1	Land surveyor	415
3	Clerks of the works, first-class	823
14	Ditto, second-class	2,009
1	Superintendent of furniture	419
1	Deputy ditto	315
4	Assistant ditto	850
		£13,304

The above, exclusive, perhaps, of the charwomen, form the Establishment. There is, however, a sum of money in this year's estimates devoted to temporary assistance. It amounts to 3,001*l.*; of this, 601*l.* is paid to three temporary clerks of the works, and the rest goes to twelve "temporary draughtsmen and technical assistants"—making an average of 200*l.* a year to each. Those gentlemen seem to form an æsthetic "*hors-d'œuvre*"; they may presumably be, according to Mr. Mitford's description, the architects of her Majesty's Office of Works and Public Buildings. Age, disinclination, or obance, the want of friends, or the innate contempt which a bureaucratic element feels for any kind of genius, seem to prevent twelve nameless gentlemen—whose respective salaries are less than those of the Superintendents of coals and firewood, candles and oil—from joining the Establishment. There is nothing, as Mr. Mitford explained in his evidence, to restrict the number of hired assistants to the auspicious number of twelve; it may rise to a score, to fifty, to a hundred. A single advertisement in our columns—and this, perhaps, is an inexcusable attempt to increase our store—will suffice to procure for her Majesty "hired draughtsmen" at 200*l.* a year; and we have not the smallest hesitation in believing that the architecture produced by the majority will be as good as much of that which is admired by the ruling or landowning families of this country.

It has been said by correspondents of the *Builder* that many commercially successful professional men do what is now done by the Office of Works: they keep an architectural farm, or, to use Mr. Beresford-Hope's latest indignant simile, their buildings are manufactured "like shoes." There are undoubtedly men of the sort; but the work they do is stamped with the genius of manufacture alone. It neither gives artistic character to the present time, nor does it offer anything tangible for a future generation to develope and improve. Undoubtedly the æsthetic outsiders in the employment of the Office of Works could at the present hour reproduce the Houses of Parliament; but the conception of a work which, in its relation to the increased knowledge and artistic skill of to-day, shall equal the masterpiece of Sir Charles Barry, in its relation to the state of English art thirty years ago, is above their mark. The Houses of Parliament, great as has been the cost, were an infinitesimal pecuniary burden to a nation which, since their erection, has slowly earned the right to a place in the artistic community of Europe. That architectural design and constructive initiation are not the functions of a Department, seems even to be admitted by the system pursued at the Office of Works. There, to all appearances, design and initiation are intrusted to a temporary and an unrecognised staff. It is said, however, to be composed of men of the same ilk as Sir

* We are unable to trace the subsequent career of this gentleman, who was very highly connected, and who has left the Office of Works: his office was not "abolished," and he was not pensioned. He has probably returned to the greater seclusion of Foreign Office employment.

* "The "annual increment" to the salary of Secretary to the Office of Works is 300*l.* *after five years.*

† It had long been thought in the architectural profession that,—in spite of the excellent "surveyors" who, to judge from Mr. Beresford-Hope's remark, seem to have been described by Mr. Mitford as "trained architects,"—the gentlemen to whom the credit of the official designs was chiefly due were included in the comprehensive phrase, "the hiring of a few temporary draughtsmen."

‡ We were foolish enough to go to the British Museum Library for these Estimates. In answer to our inquiry, an official replied that the Museum was possessed of all Parliamentary papers up to the year 1875, and that eventually it would receive the remainder!

James Pennethorne and Sir Digby Wyatt; but at least there is this difference: the two last attained high distinction in the profession of British architects, the twelve temporary draughtsmen of her Majesty are forced to remain in its lower grades.

COST OF HER MAJESTY'S OFFICE OF WORKS.

We have not the smallest wish to depreciate the value of the services rendered by officers of her Majesty's Works. Their duties are as necessary as they are many and varied. The vote of public money for which the Office of Works is responsible to Parliament amounts this year (1877-78) to more than a million. A part of the vote is made up of the following works:—

Royal Palaces	£34,105
Royal Parks, &c.	117,645
Public Buildings	127,457
Furniture of Public Offices	16,290
Houses of Parliament	34,275
Home and Colonial Offices	2,250
Sheriff Court Houses, Scotland	8,439
Revenue Buildings and Post-offices	195,741
British Museum	9,337
County Courts	48,365
Metropolitan Police Courts	10,825
Further Embankment at Westminster	1,082
British Embassy Houses (abroad)	44,917
	£653,627

The design, execution, and superintendence of the above items are conducted by the Department; other works paid through the Office of Works, but designed, executed, and superintended by really independent agency, are as follow:—

New Buildings, Science and Art Department	£12,664
Surveys of the United Kingdom	133,500
Metropolitan Fire Brigade	10,000
Wellington Monument	1,000
Natural History Museum	70,000
Courts of Justice	120,325
	£347,489

Thus, out of a vote of 1,000,126*l*, the work actually done, or to be done, by the Office of Works, does not exceed the sum of 652,637*l*. The cost of the staff employed to do this work is 49,013*l*. 4s. 3d.; and it is distributed in the following manner:—

Salaries of Non-technical Officials	£17,819	0	0
" Household	1,021	0	0
" Technical and other Officials	13,304	0	0
" Temporary Clerks of the Works	601	0	0
" Temporary Draughtsmen	2,400	0	0
Travelling Expenses	2,200	0	0
Incidental Expenses	550	0	0
Superannuation Allowances	5,296	11	2
Compensation Allowances	5,442	5	4
Compassionate Allowances	379	7	9
Total for the Official Year 1877-78	£49,013	4	3

In round numbers the country is made to pay in salaries more than 7½ per cent. commission upon money expended by the Office of Works for Works and Public Buildings. *But that is not all.* The commission on the purchase of land at home and abroad, the estimating, surveying and valuing of several works, old and new, form *a colossal item of official extras*, over and above the sum of 49,013*l*. 4s. 3d.; and it is moreover admitted that no part of the business transacted by her Majesty's Office of Works consists in advising about the arrangement, or conferring with the architects about the materials, of such public buildings as those in course of erection by Sir Gilbert Scott, Mr. Street, Mr. Waterhouse, and others. We do not wish to be misunderstood in this last remark; we do not infer that the Office of Works should invidiously control, or "oversee" with any hostile purpose, national works under the charge of professional architects. It is due largely to Mr. Ayrton,—and, in his fashion, he introduced some reforms,—that the country has set up a surveyor's office which costs 16,305*l*. per annum, and an eighth of that sum is spent on the salaries of draughtsmen who are said to do the surveyor's architecture. We should like to see someone at the head of the architect's department, sufficiently sympathetic, and competent to confer, with those professional men who, from time to time, are employed independently by the nation to erect public buildings.

THE STORY OF THE GOVERNMENT OFFICES, incidentally connected with the administration of public affairs in this country, affords a moral which reflects upon the character of a Constitution, vaunted at home and envied abroad. That architecture ought to be a national appurtenance is unquestionable; that it should be a question of political party has been reserved for the edification of living men.

Nothing perhaps will astonish the inhabitants of the Canadian Empire, or of the Australian and Polynesian kingdoms, more than the discovery that about nineteen hundred years after the sacrifice of Julius Cæsar—a short time before the rise of the British Republic—the inhabitants of this island determined the form and character of their administrative palaces on a principle of political selection. If the advisers of the Queen, whose sway the British people then acknowledged, were politically "blue," the islanders erected tall towers, big buttresses and pointed pinnacles, steep roofs and lofty chimneys; if politically "buff," they dispensed altogether with roofs and chimney-shafts, put up columns instead of buttresses, and arched their doors or windows in a circular instead of a lancet form. When the "buff" political chiefs were victorious the islanders copied their palaces from some built in Italy about three hundred years previously; if the "blue" chiefs were in power, the islanders altered the outsides of the same palaces to resemble some erected in Venice and France about six hundred years previously. The "New Zealander" will probably prove to his countrymen that all the civilisation of Australia and Polynesia is directly due to the perpetual strife which existed between the "blues" and "buffs" of Britain. For ourselves, we can but say after a careful review of the circumstances relating to the erection of one block of four Public Offices between Parliament-street and St. James's Park, that the history of the last forty years,—as far as her Majesty's Works and Buildings go,—seems already fortuitously blurred in an antagonistic concourse of "blue" and "buff" atoms.

How so ungovernable a people as the Parisians manage their artistic difficulties, will, as we said last year,* astonish the First Commissioner and Mr. Mitford. The position of French professional architects employed by the State is as happily onerous as it is successfully complicated. We find, to quote our own words, young M. Duc (now one of the most distinguished men in the world of French art, and not to be confounded with M. Viollet-le-Duc) clerk of the works (*inspecteur des travaux*) under Alavoine, an architect employed at the beginning of the present century to design a monument in commemoration of the destroyed Bastille; we find the late M. Espérandieu, clerk of the works under the late M. Vaudoyer at the new cathedral of Marseilles, and that at a time when the former was erecting in the same city one of the finest modern buildings in France. During the greater part of the Second Empire the capital was divided into eight "*circonscriptions*" for the preservation and maintenance of public buildings; and at the head of each was a professional architect. Thus, in 1869, the Colonne de Juillet which remained under the charge of its architect (M. Duc), was in the seventh "*circonscription*" of which M. Lefuel (then Crown architect at the Tuileries) was the inspector-general; while the Cour de Cassation of M. Duc and the Ecole des Beaux Arts of the late M. Duban were both in the third "*circonscription*" of which M. Questel (then Crown architect at the Château de Versailles) was the inspector-general. The system pursued in Paris of appointing two or more really trained architects to superintend the execution of a large public building, under the superior orders of a professional senior whose death or resignation permits them to rise in grade or succeed to the chief direction, has been attended with results apparently admirable. It is, however, sometimes said in Paris, particularly by the "*vérificateurs*" and "*métreurs*," a class which responds to the London building-surveyor, that French architects are not "practical" men; but as we are wise enough not to quibble over the English terms of "architect" or "surveyor," so our architects may very well run the risk of being called "not practical," if they will but produce buildings in London equal to the Cour de Cassation, both in an æsthetic and a constructional point of view. The fact is, as we constantly repeat, Frenchmen, in spite of things moral and social, are ahead of their English neighbours in this particular by at least a hundred years. Their art academies are older by that period of time than any established in this country; and intuitive respect for the arts comes by inheritance. Nor is the last Republic less favourably disposed to cultivated architects than the Empire which preceded it. A decree of 1871 re-established a permanent "Service of Architecture," at the head of which were three inspectors-general, MM. Bailly, Davioud, and Magne, professional architects of tried and distinguished accomplishments. A slight modification of that decree was made in 1876; the artistic inspection of Paris was then divided between MM. Ballu and Daviond, the three seniors MM. Duc, Bailly, and Magne remaining in an honorary capacity. The duties of inspectors-general in Paris are varied and comprehensive. They give opinions upon designs and estimates; they look after works in course of execution, as well as the "*comptabilité*" of the architects intrusted with such works. Their "overseeing" more particularly regards the choice of materials, the difference between estimate and outlay, the alterations made during the progress of the works, and such things. They are also expected to prepare, first, the programme of designs for new buildings,* and, if required, preliminary sketches for the same; and secondly, to inspect the works in the division to which each is attached. No official, no one man of artistic and æsthetic experience, approaching that of either Duc, Bailly, Magne, Ballu, or Davioud, is at present engaged to serve the British capital as those excellent architects serve the capital of France. Yet, to the good or bad organisation of her Majesty's Office of Works, or to the absence of any organisation at all, has been largely due the quality of the buildings, new and old, in which various Departments of State are extravagantly crowded or magnificently lost. The bickerings of officials have encouraged the blunders and concealed the cost of office. The Lords of the Treasury have squabbled with successive First Commissioners; Mr. James Wilson sparred with Sir Benjamin Hall, Mr. Ayrton sparred with Mr. Layard, Mr. Lowe absolutely quarrelled with Mr. Ayrton; while a free fight of Departments preceded the fall of Mr. Gladstone and the dispersion for a time of the Liberal party.

We invoke the attention of Lord Beaconsfield, as the enlightened chief of a powerful Cabinet, to the historical facts alone in our Story of the Government Offices. They reveal how the mere business of official architecture is indefinitely impeded, or irretrievably quashed, by the political shiftings of administration; by the constant change of heads in the Office of Works; by the utter absence of any settled principle for initiating works, or carrying them out when initiated; by the hand-to-mouth habits which have distinguished, in spite of a few brilliant exceptions, the financial dealings of Ministers with the representatives of the country; by the mental narrowness of a Treasury unreasonably afraid of meeting Parliament with proper estimates for executing works; by an almost traditional reticence in asking for funds which, expended within our own shores would help to develop both common and particular resources, would strengthen the higher branches of technical skill, and would educate the working classes; by many things besides, impossible to enumerate, but which now combine to astonish British taxpayers with the legislative stupidity of forty years.

NEW INCIDENTS IN THE BATTLE FOR LIFE.

THE public attention has been directed, with unusual vivacity, since the close of the session of Parliament, to the pressing importance of some of those great sanitary, social, and economical questions, the discussion of which is usually left to the professional portion of the press, or to the comparatively small number of public speakers who take a real and conscientious interest in the advance of the national welfare. Notice has been given by the Local Government Board of the commencement of the operation of the Act for Preventing the Pollution of Rivers. The issue of the annual Report, which so long bore the signature of Sir Henry Tyler, upon the railway accidents of the year, has shown a very considerable emendation in the casualty list of the railway servants, although the difference in the mathematical expectation of safety proper to travellers has been almost inappreciable. We have recently been compelled to look in the face the question of the greater or less activity of the building trade in London, and the proposed improvement in the water

* See the *Builder* for 1876, p. 181: "Monsieur Duc and some of his colleagues."

* Sir Gilbert Scott has stated in evidence that, before planning some of the new buildings in Parliament-street, he spent weeks in going from office to office consulting every head of department as to his own accommodation. "I endeavoured," said he, "to carry out his wishes whether right or wrong."

supply of the metropolis. And far out-topping in its gigantic proportions even the important questions of which the outlines are thus indicated, the sad intelligence of the terrible famine which has spread over India for a range of seven degrees of longitude and fourteen degrees of latitude, has added a terrible emphasis to the warnings already given, in our columns and elsewhere, as to the danger of trifling with the question of the collection and care of that first essential to animal and vegetable life, the rainfall of a country.

The great misfortune under which society now labours, with regard to all those measures which are called for by self-defensive wisdom, appears to us to be this. Vast and primary interests are affected, on the one side, but they are interests in which each family, or each individual, has a comparatively limited share. So vast is the field, indeed, that even that limited participation may cover all the difference between health and disease, or between life and death. Still that fact does not affect the question. The individual, as a rule, is most likely to feel that his personal welfare is so small a fraction of the common welfare, that it is unnecessary for him to attempt to defend, or, indeed, to understand it. On the contrary, if a man is taught by sharp experience how directly public neglect involves, and comes home to, private suffering, he is too apt to say, "What can one person do where so many are affected?"

While the side on which the real balance of advantage so strongly inclines is thus deprived of its due weight by the infinite divisibility of the common welfare, the opposing interests, though far smaller in aggregate value, are associated in larger units, and are thus, for the most part, far more effective in their action. Thus, we may take as an example the course of one of the affluents of the Thames, which flows through lovely scenery, and which has long been a favourite resort both of the fisherman and of the boating excursionist. The water of this stream, for a much frequented part of its course, is dark, turbid, and of so glutinous a nature, that the bubbles formed by the fall of the water over a weir remain unbroken, and cover the river with an unseemly scum for many hundred yards. Fish still are found in the water; although very frequently that fact is only to be ascertained by the appearance of their dead bodies. Persons who bathe in the river complain that any scratch or cut in the skin becomes painful and slow to heal. It is possible to put the finger on the two or three chief offenders in this matter. To one is due the blackening of the stream by an inky discharge from his works, which is probably little, if at all deleterious to health, although it is destructive of the limpidity of the water. The other allows the escape of chemical elements which, while not visibly rendering the watering impure, furnish the poison which kills the fish and festers the wounds of the bathers. The interest of the population of a large area of country is on one side. To them the purity of the stream is a matter of health and of pleasure. But the amount of injury done to each individual is so small, that, without an organisation, of which there is at present no sign, the many injured units are impotent when compared to the great compound units—the two or three manufacturers who save money by turning their refuse into the stream.

Connected with this practical difficulty, which lies at the bottom of the whole question of river pollution, is the fact that we have no admitted and authoritative doctrine on the subject yet laid down. Let any one take proceedings against such river polluters as we have indicated, and scientific opinion, so called, will be invoked on each side. A magistrate, not being a chemist or an engineer, will be naturally perplexed by this conflict of what is called authority. If all scientific men would only pull together, agree as far as the actual state of science renders fit, and be content to indicate what points are yet undecided, much of this would be spared. But in face of the contradictory opinions and wild recommendations which daily emanate from what ought to be the body of scientific men, what wonder is it that magistrates should hesitate to convict, and sanitary authorities to prosecute?

A writer in the *Times* (on 27th August) calls attention to the important subject of the pollution of rivers at their sources, in the smaller springs which are almost unnoticed, but in which is commenced the deterioration of the water. This is especially worthy of attention with reference to the practical test of pollution proposed by Mr. Crookes, F.R.S., to the effect that any affluent water less pure than the receiving stream should be held to be polluting under the statute. To carry this out, we must trace each river to its source. Mr. Bell particularises such lovely spots as Haslemere in Surrey, Dunkeld in Scotland, Dolgelly in Wales, and Henley-on-Thames. In all these he proved reckless defilement of pretty streams, which but for the filthy customs of the residents, would be sweet and wholesome. The fact is, that the increase of density in population imperatively demands sanitary measures. When there are four acres to a soul, we need trouble very little about the disposal of refuse. When there are forty souls to an acre, the neglect becomes intolerable. As to the special remedy advocated by this writer, we reserve the expression of a decided opinion. But it is matter for regret that the true point of the question has been misapprehended by the writer of the editorial comment on his letter; who says:—"We must convince our rural population, then, that sewage is a valuable commodity. If our rural population and its sanitary authorities will once master this simple but neglected principle, we may rely on self-interest to preserve our brooks and streams from poliution." This idea of value to be obtained, where the main object is nuisance to be destroyed, has been perhaps the most prolific source of all the delay, waste, and misconstruction that has up to this moment so fatally retarded the labours of the sanitary engineer.

It is yearly becoming more evident that every attempt at bit by bit dealing with our water supply, including the disposal of refuse, involves waste and failure. As to the question now occupying so much attention, the supply of potable water for London, there has been no attempt to take the first necessary step to any sound solution by the exhaustive collection of facts. Messrs. Bazalgette, Bramwell, and Easton say, "There would be no difficulty whatever in obtaining from the country surrounding London" 32,000,000 gallons daily "of the purest, brightest, and most palatable and wholesome water that can possibly be desired." Mr. John Evans points out (in a letter to the *Times* on 25th August) that the Kent Water Company is already pumping upwards of 9,000,000 gallons of this water on the south of the Thames; while the New River Company is able to pump an equal quantity from its deep wells in the chalk at Amwell-end, Amwell Hill, Hoddesdon, and Turnford; and "that it is a mistake to suppose that in that formation there are vast stores of water now lying unused." Mr. Clutterbuck, one of our oldest investigators of the yield of the chalk system (in the *Times* of 28th August), gives positive and valuable data, which are by no means favourable to the assumption of Messrs. Bramwell and Easton. Most of the surface of the country within fifteen or twenty miles of London, Mr. Clutterbuck observes, is covered with tertiary clays and sands, not forming a part of the chalk water-shed of the London basin; hence, the water must be derived from beyond these limits. The water from this exterior chalk collecting-ground is brought down, he adds, by the Lea and the Colne on the north of the Thames; by the Wey, Mole, Wandle, Ravensbourn, and Darent to the south.

In November, 1833, the Lea was gauged by Telford; and its volume determined at 110 cubic feet per second, or 58,000,000 of gallons per diem. Of this the New River Company took 24 cubic feet per second, and the East London Company (in 1828) 11 cubic feet per second; leaving a surplus of under 50,000,000 of gallons per diem for the stream. The Colne, at Watford, was gauged at 15,522,000 gallons per diem, by Telford; the Gade, at 21,772,800; making a total, in 1833, of 37,294,800 gallons per diem. These are valuable data with reference to that part of the country with which the writer is familiar. But, in the very same letter, Mr. Clutterbuck makes a statement which is the very opposite to the truth. It is one the acceptance of which could only tend to bar investigation in the very quarter in which its results are most important. Referring to the river above named, he says,—"That the volume of these rivers is the gauge of the yield of their several water-sheds is beyond dispute, except where, in the latter rivers, they have their outfalls into the bed of the stream." We quote the exact words, in order not to misrepresent a statement, as to the latter part of which we fail to catch the exact meaning. But as an instance of the difference between the rainfall of a country and the volume of the river which drains it, we may cite the Thames. The minimum gauged flow of this river at Hampton is 711 cubic feet per second. The maximum measured, is 2,226 ft. per second. This latter figure, if it were an average instead of a maximum, would be equal to two milliards of metric tons per annum. But the minimum rainfall over the basin, in the driest year gauged, was treble that quantity, or at least six times the average flow of the river in an ordinary year. But while the question of the relation of the flow of rivers through chalk districts to the water-shed is by no means so simple as is here suggested, the idea that the Wey or the Mole offer gauges of the yield of their respective watersheds is absolutely incorrect. Any observer who takes his place on the lofty chalk ridge of the Hog's Back, near Guildford, and allows his eye to range over the wide and beautiful prospect extending to Haslemere, Hindhead, and the hills near Portsmouth, and then, descending to the narrow bridge under which the Wey runs at Guildford, compares the yield of that large area of water-shed with the small stream which is all that appears on the surface, will be easily convinced that the great delivery of the rainfall from that extensive area is subterranean. The constant daily supply of nearly 300,000 gallons from the Guildford well tells the same story. The outfall between the Ravensbourne and the Darent is said by Mr. Clutterbuck to be into the bed of the Thames. It is more probable that the great volume of water from this district follows a subterranean course to the sea. The Wey and the Mole certainly lose water in their course, and diminish, instead of increasing, in volume as they approach the Thames. Messrs. Bramwell & Easton, in a letter to the *Times* published on the 30th August, state that "fresh water is found pouring out around the coast at the base of the cliffs and over the sea-beach in enormous quantities, so that on the retirement of the salt water it is possible to obtain immediately the most beautiful fresh water from the beach; and indeed that these subterranean streams must exist, and that numerous quantities of water pass through them, is manifest when one considers the large area of chalk receiving the rainfalls, and the small amount of water which flows off that area in the form of visible surface streams."

It is impossible to compare these different statements, and to observe the use of such terms as "assume without dispute," "no inconsiderable quantity," "enormous quantities," "danger of insufficiency remote," and the like, without becoming aware of the extremely imperfect state of the knowledge on which different projectors are content to base their several schemes. Rainfall, area, volume of rivers, evaporation, subterranean circulation, are physical facts capable of measurement and determination. To talk about redistributing the water-supply of a district containing more than a sixth part of the population of the kingdom on an assumption of the magnitude of these facts is,—we need not say what it is,—but it is *not* wise. The watershed of the Thames, with its affluents and tributaries, covers an area of 3,300,000 acres; the average rainfall over which is variously estimated at from 25 in. to 27 in. If we only look at the area contributing to the Thames above Teddington Lock, we have to reduce the collecting-ground by a million of acres. If we take the rainfall of the dryest seasons in which gauge observations have been taken, that is to say, the year 1832, four milliards of tons of water fall on this restricted area. Allowing 50 tons of water per annum for each individual of the population (or upwards of 30 gallons per diem apiece), only 200,000,000 tons out of the 4,000,000,000 tons of water available are required for all purposes of domestic consumption; the greater part of which, after performing all services and passing through proper modes of purification, has yet to seek its outlet to the sea. Is it credible that in the presence of such wealth of water we are to be squabbling about giving Londoners to drink as much water apiece as will ooze through a pin-hole? Is it after the nature of the domestic servants of the present day to wait for this water, while they can help themselves from the ordinary cistern?

We require to have these matters duly investigated, which they have never yet been. The investigation must be conducted in the impartial spirit of judicial inquiry; not by any man, however eminent, who has his own plan to propound, or that of his friend to which he is willing to stand godfather. The same remark applies to the purification of our rivers and streams. Unless it is recognised as a public duty, to be

done by public servants for the public good, it will never be done at all. And let us not hug ourselves in the notion that these are the vagaries of dreamers, or of fidgets, and that these matters will, somehow or other, take care of themselves. For a time such a policy may answer. But only for a time, and for a place in which the rate of population to area is low. In the United Kingdom, and especially in the home counties and metropolitan district, the pressure of population on area is becoming very heavy. And it should not be forgotten that calamities such as, from their very magnitude, have been regarded as impossible, are now in actual presence. In Bulgaria and in Armenia from half a million to 750,000 men at the very least are subtracted from the culture of the earth and the industry of production, and are flying at each other's throats. The number of mouths thus left with scant or no food forms an appreciable proportion of the population of the world. Yet all the fury of this savage war is less unrelenting, in the tribute of death which it exacts, than are the silent ravages of famine. Half-a-million of deaths from famine are already reported from India. Five millions of such deaths are anticipated! This takes no count of suffering in Indian States not under British rule, such as Mysore. It takes no count of the ravages, probably far more serious, of the same evil, arising from the same atmospheric causes (which we can do so little to control or to modify) in China. It might almost seem as if, in terrible mockery of the nostrums of those teachers who are afraid that the human race will replenish the earth too quickly, the entire world (for we must not forget the depopulation of Africa by the slave trade, and the extermination of the Red Indians by the settlers of the United States) following the example of what was long the first nation in the world, France, had entered on a cycle of depopulation and decrease in the numbers of mankind.

It is quite true that no experience leads us to anticipate the occurrence of an atmospheric drought, such as that which has occurred this year in India, in China, and, as we learn from the last reports of the slow rise of the Nile, even in the tropical mountains of Abyssinia. But it would be unwise in the highest degree to allow that fact to influence our efforts to make the best of the resources of Nature. Even in India, the districts are comparatively few where patient industry cannot command water, and the result of water,—crops,—in years of drought. So great is the subterranean volume of water over vast areas of the Indian Continent that a year's drought hardly affects them. The Spring or Autumn floods drain from the surface of the Peninsula the overplus of the monsoon rains. But the quantity of water, probably far larger than that which thus escapes, that makes its way through pervious strata, affords a source of wealth to the industrious cultivator who has the enterprise to seek for it. In the Bengal and Behar famine, in 1873, plots of verdure were found in the midst of arid wastes; due, not to any geological or surface difference of soil, but to the energy of the more cultivating races who made these oases in the desert. In Madras, we have been told by men intimately acquainted with the country, water is almost everywhere to be found by those who will sink low enough for it. In the most terrible stress of Nature, it is rather the improvidence of man than the inflexibility of the physical conditions which allows districts to be swept by famine and pestilence. But even the negative failure of the lower Indian tribes to cultivate is not so directly calculated to produce ultimate and abiding mischief, as the positive outrage on the natural laws of health and decency effected by such misuse of the well-springs and sources of our rivers as those to which we have referred. It may seem, for a moment, as if we had grouped together evils of very different natures in the first lines of these remarks. Not so. The operation of the evils is indeed different. But the outcome of them all is the same, viz., destruction of social welfare, and diminution of human life. And the source of them all is the same,—neglect of patient, combined, co-ordinated study. As a people, the English are helpful, ready to put their shoulder to the wheel, and made of the toughest fibre. They are not, as a rule, either idle or indifferent. But they are, and ever have been, sadly destitute of systematic forethought and organisation. They waste their great wealth of observant power and of practical ability by sheer want of concert. In countries in which the ability and industry of the people may be far below the English standard, there is far less waste of scientific and practical power. Rivers and water-ways like ours would be made in France or in Italy a constant source of wealth and enjoyment. We cannot,—or do not,—keep them from pollution, dilapidation, and decay. It is not agreeable to have continually to sound the same note of alarm. But the period of the world's history on which we have entered is one in which the most terrible evils that can afflict mankind are unloosed. Our Indian fellow-subjects, as well as our European neighbours who are not our fellow-subjects, are falling before them in hundreds of thousands. Is this a time for neglect at home? for neglect which not indirectly, but directly, affects that very source of the means of supporting life on which so much depends? If we are content to send millions of money to feed the waterless natives of Madras and Southern India, shall we continue to waste and to neglect our own sources of water supply, and ignore the terrible lesson of Indian distress? If we do, there can be no doubt that, sooner or later, we shall bitterly suffer for our fault.

THE PARIS EXHIBITION OF 1878 AND TECHNICAL EDUCATION.

THE secretary of the Labour Representation League in London, in a letter which he addressed some time since to the *Daily News*, called the attention of the Royal Commission of the Paris Exhibition to the advisability of using the occasion for imparting to the British workpeople a lesson in technical education.

The hint is one that should certainly be carefully noted, and the Commissioners whose duty it is to appoint the jurors for different sections should not overlook the advantage of admitting amongst them a large element of practical workmen, all of whom should be urged afterwards to express in writing, independently, their opinions on what they have observed, avoiding all hasty and lightly-considered thought, and giving no written or authoritative expression until at least three months after their return to England.

There must be very few instances connected with any branches of trade that come into competition between England and France, about which the British workman would be likely to form without reflection a correct opinion, and some little time must be allowed even to the most cultured or the most impartial mind, to allow of its weighing with sufficient accuracy the merits of the products of a novel industry, or an industry under novel circumstances. We are all, even the most broadly-minded, too apt immediately we get free from the trammels of English every-day life to condemn too liberally, or to praise unreservedly, salient points of difference that strike the Englishman as soon as he lands either at Calais or Boulogne, or when he treads the mildly elastic asphalte of the Boulevards.

The proverbial faults that are acknowledged to exist in all cases on both sides are nowhere more distinctly marked than on either side of the English Channel, but the observer whose opportunities have been sufficiently ample to allow of his opinion being of any value, must surely lean to the conclusion that the French have already overcome more of the difficulties inseparable from existence, and they are more rapidly correcting the errors that time has bequeathed to us. Sobriety, order, system, economy, and a regard for independence are doing wonders in France; the vices of the East, that in Paris have done so much to degrade the whole city to the level of a metropolis of over-worked pleasure-seekers, will, it is to be hoped, soon become contemptible by familiarity.

By all means let some of our jurors to the Great Exhibition of 1878 be portioned off to visit the workshops of the industrial sights in France, especially in Paris; let them carefully "look into" the reason why it is that French artisans are able to produce so cheaply so many frightful objects that the rest of the world appear so largely to crave for, and let these jurors bear in mind the inevitable conditions of all who follow, that they must be behind, and at once forego the easy pleasure and profits of imitation, and avoid altogether the idea of manufacturing any ornamental objects, such as the Parisian workmen startle the man of taste with. Let us try with the same energy to force the good against the bad, and trust a little more to a principle which has never yet failed, the predominance of right over wrong.

We shall like to hear that the Royal Commissioners have made a selection of practical "top-sawyers," the best men out of a number of "shops"; let such men be, without exception, young, young enough to learn easily whatever they see or hear; let them, without a week's delay, all join a French class, to meet every night until next May, for the purpose of studying the language; let them all get some slight knowledge,—the more the better,—of shorthand, and drink between this and next year light French wine or water, the difference is not great just now; and let them all know their own business sufficiently well to be aware that the best of us are wonderfully deficient in that knowledge.

Day by day, when in Paris, let them go forth to the Exhibition to observe the wonders that will be gathered together for their edification; let them take notes, with the understanding that, within three months of the close of the Exhibition, each of them is to furnish to his Government a report on what he has seen, and what he has thought about that branch of industry that he specially represents, and we suspect that such collected memoranda would become exceedingly valuable contributions to our commercial literature.

And now what would these inquirers see if some of them were allowed to pay a visit at this moment to the field of their future labours? They would find the old Champ de Mars no longer the sandy desert that we described not much more than a year ago, with its accustomed line of cavalry crossing and re-crossing, but what we are apt to call a wilderness of architectural wonders,—a wilderness, however, so organised that a few short weeks will render it a palace of marvels.

If the visitor remembers the Great Exhibition of 1867, the first thing that will strike him will be that, architecturally, the Exhibition of next year is not likely to be so agreeable to the eye; the oval form of that building was peculiarly happy, but with all its advantages, it was deficient in affording as much accommodation to exhibitors as the plan adopted by the projectors of the present undertaking. It is said that the straight galleries will enable the public to visit more easily any special section. In so far as concerns the arrangement of the products, great additional space is thus obtained. The perspective view, also, will be not a little curious to those who delight in vanishing lines that recede almost into space, although the timid pedestrian is likely to be frightened at the distance he may have to go over in a walk from England to Kamtschatka.

The national divisions, unlike most geographical demarcations, will be very distinctly determined, and a proposal has been made in the first place by Sweden, which has been eagerly accepted by the French authorities, that the Scandinavian section should be guarded by soldiers of the Swedish army, a proposal so happy in its military civility that it is hoped that all those countries that are here to be represented will be protected by a similar number of peaceful warriors. How proud our workmen would be to see their handy-work presided over and protected by a detachment of the First or Second Lifeguards, and on gala-days, how great a display we should make by our royal trumpeters and drummers appearing *en grande tenue* as our country cousins delight to see them on a drawing-room day at St. James's.

Already the crowned heads from here, there, and everywhere are seeking through their agents, their ambassadors, comfortable quarters for next year's festivities; their craving for information and instruction is most praiseworthy, although it is not unlikely that they may have an idea of combining some little pleasure with the arduous duties that their visit will impose on them. Ceremonia, however, will be made, by the simple forms of republican government, as little irksome as possible to friendly royal allies.

The King of Spain will return to the Hôtel Basilewski; the King of Holland to his *hôtel* in the Avenue du Roi de Rome; King Leopold of Belgium has already retained a mansion in the Avenue Montaigne; the King of Portugal has chosen his residence in the Avenue du Bois de Boulogne; the King of Sweden has not yet fixed his dwelling, but will be one of the royal visitors, as also the Crown Princess of Brazil, with her husband, the Comte d'Eu. We have not yet heard where the Prince of Wales intends to put up, but Mr. Chief Commissioner Cunliffe Owen is said to live royally during the exceedingly laborious visits that he pays to Paris, and we have no doubt of his ability and good-natured determination to do credit to the historical hospitality of Great Britain.

Paris.

THE HOUSE OF CHRISTOPHER PLANTIN, THE PRINTER, IN ANTWERP.

THE tercentenary of Rubens's birth recalls memories other than those connected with the great name of the painter; the house of the Plantins, the Flemish Longmans of the sixteenth century, affords to the lover of books, of splendidly-embellished books, a treat, the interest of which is not thrown into shade by the magnificent display of the accumulated works of Sir Peter Paul Rubens.

Not even the splendour of Rubens's life and the magnificence of his performances, nor the honour and fame which his name secured to him, diminish in the slightest degree the lustre that the Antwerpians and the world find to linger round the name of the great printer, Christopher Plantin.

The house of the Plantins, in the Marché au Vendredi, has become, and will long continue to be, one of the most interesting exhibitions in that most interesting old city of Antwerp. Those who have visited our own Caxton Exhibition will understand how exceedingly full of instruction such a display must be, arranged as it is with as much regard as is possible to the historical period in which the Plantins so successfully laboured.

During the Rubens tercentenary, this famous house, which has remained now some three hundred years in the hands of the Plantin family, has been thrown open as a museum, and the public have eagerly sought the opportunity of looking back to the processes adopted in days that they justly regard with veneration and pride.

An admirable Gothic house, selected three centuries ago, on account of its excellence, by old Christopher Plantin, shows us now a state of preservation that seems to have resisted the efforts of time to injure its early beauty, and which tends to prove that good work does not require, as many suppose, the picturesque crumbling of decay to add a charm.

Little, indeed, is changed in the aspect of the place since the day when Guicciardini, the indefatigable Italian, visited Antwerp, in the sixteenth century, and spoke of that "magnificent printing-office, the direction of which is worthy of praise and remembrance, much more as it would be difficult to find another so perfect in all Europe, where there are more presses, more types and diversity of characters, more cases, and more instruments suitable to an art so excellent, and where so many rare and learned men are employed at great expense to review and correct the books which are produced in every language (I except none) or dialect in use throughout Christianity; so that everything calculated in this home of the Muses, both for the labour and the printing, every day must be spent more than 300 florins of the country; a fact, illustrious and royal, which redounds not only to the profit and honour of the praiseworthy author, but also to the whole city."*

There is the house almost in the same state as it was left by old Christopher Plantin, when he died in 1589, bequeathing his magnificent business to his son-in-law, Johann Maretus. There are the workshops, all the typographical materials in their place; the cases are filled with types, the hand-presses from which have issued so many superb works alone await the forms; on the inking-table lie the woollen pads covered with dog-skin; close by is the correctors' room, a large apartment lighted by rondelled windows, tall carved oak seats are round the table, and as we cross the threshold we expect to see seated the venerable figures of those master workmen, Cornelius Kilian and Raphelengius, Ortelius, Arias Montanus, Justus Lipsius (whose inkstand is still preserved), or Gaspar Gervartius, whose features have been made so familiar to us all by that gem of our national collection bequeathed now fifty years ago by Mr. Angerstein.

Everything in the Plantins' house is intact; the ceilings, the lofty carved chimney-pieces, with their iron fire-plates, embellished with the arms of the family; while the stamped Cordova leather, which at that time the Flemings imported from Spain, has lost little of its original lustre. The pictures are portraits, chiefly by Francis Parbus the Elder; one of them is that of Justus Lipsius, placed in the correctors' room, not far from a copy of the picture by Rubens. There are no fewer than thirteen portraits by this master in the museum, the greater number, however, copies from Porbus. Among these one is charming, that of Plantin's wife, Joan Rivière. There are other works by Vandyck, Cornelius de Vos, Gavert Flinck, Luigelbach, &c., besides numerous engravings from Vandyck and Rubens, and the Flemish masters; while in the museum are preserved no fewer than 15,000 wood blocks, 8,000 copper-plates, 40 ornamental alphabets and types in no way inferior to those of the Aldi and the Estiennes.

There may be admired the famous *Biblia Polyglotta* of Arias Montanus, the shining glory of the house of the Plantins, the greatest *chef-d'œuvre* that issued from their presses, and which cost no less than forty thousand crowns to Philip II., while it almost ruined Christopher Plantin. It was a French engraver, Guillaume Lebé, who was specially sent for from Paris to carve the characters for this gem. As for the manuscripts and autograph letters addressed to the Plantin family, they abound, from Montanus, Borromeo, Justus Lipsius, Elzevir, Bollandus, Junius, Gervartius, Rubens, Vandyck, and a whole host of the celebrities of the three last centuries.

The tercentenary of Rubens's birth has suggested to the Antwerpians the happy thought of opening as a public museum this fine old place; and M. Verhoeven Bal, president of the Section of the Plastic Arts of the Cercle d'Anvers, on the inauguration day, in congratulating the burgomaster, M. de Wael, spoke well when he said,—"The acquisition of the Plantin Museum is the most useful act which the municipal administration has done to the arts for many years past. These rich collections, the trophies of the artistic and literary glory of our ancestors, might have been acquired by other nations, and thus have left Antwerp for ever. But you have not wished this. You have understood that our city ought to acquire possession of these precious annals, which will make us more and more acquainted with the great artistic movement of the sixteenth and seventeenth centuries, and which will also contribute to re-establish historic truth in one of the most important periods of our national history."

* Description de tous les Pays-Bas. (Translated into French from the original edition.) Arnhem, 1613; Guicciardini, b. 1482, d. 1540.

PROPOSED NEW HARBOUR AT EMDEN, GERMANY.

THE efforts of Westphalian colliery-owners, and German economists generally, towards extending the export of German coal are well understood in this country, and an undertaking which has the double object of reducing the cost of transport of coal and supplying increased facility for shipping, must, consequently, be of great interest to English coal producers and exporters. The most recent step in that direction is the projected construction of large harbour-works at Emden. The town of Emden is situated a little below the mouth of the River Ems, where the latter debouches into Dollart Bay, and is connected with the river by the Delft Canal. Its present port,—consisting of an outer and inner harbour,—it seems, requires only the expenditure of sufficiently large funds to make it one of the principal ports of Germany on the North Sea.

The project is discussed in an article of the *Ostfriesische Monatsblatt*, where, also, the important subject of the export of German coal in connexion with this harbour is raised. The efforts of the Germans to compete with the English successfully in the export of coal, we know, depends very much upon their ability to rival, both in quality and price, the old-established coal trade of England to foreign ports. This, the writer of the article thinks, may be effected by placing the German exporters on the same level with those of England. The much greater distance of German coal districts from ports of shipment raises difficulties which cannot be overcome simply by unanimity among producers and exporters, nor by saving effected in all branches of the trade. It depends, also, very much on German railway companies to develop the coal trade by low rates of carriage, and such plant at the shipping ports as will enable colliery-owners to deliver their produce there in the same state as, for instance, they do in England. But still more is required. In consequence of their geographical situation, and their most direct railway communication with the Westphalian coal district, the Ems harbours have most attracted the attention of exporters, the principal of which is the Westphalian Coal Export Association. This association has otherwise acted energetically in the matter; but the greatest aid to the development of the German coal trade, a convenient port of shipment, with its indispensable wharfs and jetties, has yet to be supplied. By gross neglect of the harbour, the trade of Emden, which was very flourishing in the last century, long before coal was thought of in Germany, has gradually been confined to branches in which large ships are not used. But there are signs that the advantages possessed by Emden for export and import will shortly be properly utilised, and that a spacious harbour, admitting the largest ships, and supplying all the wants for loading and unloading, will be provided, and will soon make it one of the most frequented coal ports. If we suppose ships engaged in the import trade to take out coal on their return voyage, not alone Norway, and the Swedish, German, and Russian ports of the Baltic, would be buyers of Westphalian coal, but such vessels as are now compelled to go to England in ballast on purpose to fill up there with coal for Transatlantic ports will be able to obtain their cargoes at Emden. Though the gain to the town itself would be immense, there can be no doubt that German industry generally would be greatly benefited by better harbour accommodation. Emden would through it become the great gateway of the Westphalian coal and iron export trade, and from a long period of depression would rise to an importance never before attained. The town of Emden is fully alive to the project, but its means are at present limited, and the undertaking requires the support of the State. The town council of Emden, recognising its vital importance in its proposal to the Government, has undertaken to contribute handsomely, not only towards the intended harbour works, but also to the Ems-Jade Canal, included in the plans for those works.

WANDERINGS AND QUESTIONINGS IN ARCHITECTURE AND ART.

THE CLAIMS OF WOOD AS THE MATERIAL OF GOTHIC WINDOWS.

I EXPRESSED my surprise some twenty years ago, in an address to the Liverpool Architectural Society, reported in the architectural journals, that the claims of wood, as the material for windows, and other features of a Gothic building, should have been unrecognised, with the intention of enlarging on the subject at some future opportunity, which I now seize.

I had long been of opinion that the window, though it is perhaps the most successfully-developed feature of the Gothic system, cannot but have suffered from the common supposition that its construction belongs exclusively to the mason, and its only proper material stone. That this supposition is unfounded, I shall here endeavour to show.

It is true that constructing the window of the same substance as the wall renders it more completely an integral part of the building it lights, and gives to the whole a species of structural unity, the idea of which in itself is agreeable. But this is not essential either in an architectural or in a common-sense point of view. Nor does such practice render a building, as some would be inclined to contend, more perfect architecture. Indeed, the employment of one uniform material throughout, internally and externally, from top to bottom, would not do so. Uniformity of material would be almost certain to render a building less perfect, as one material could scarcely be adapted to the diverse purposes to be served; and it would be counter to the method of nature. In the great, fearfully-and-wonderfully-made temple—the human body—we find teeth, hair, nails, eyes, and other parts, each of a material differing from that of the other and the main body, according to the purpose it has to serve; and this fact, rightly interpreted, suggests that each part of a building should be formed of the substance best adapted to its use and destination, and the part it has to play in the architectural economy. In the human body one organ requires hardness and rigidity, another toughness and flexibility; one has need of this property or quality, another of that; and so it is in architecture; it is impossible for one material to be made to serve a diversity of purposes so well and so effectually as a diversity of materials might be made respectively to serve them. And in reference to the feature in question, so totally different is it from the wall it pierces, that, however well that wall's material would practically serve for it, yet reason must most approve of its appearing in a different one.

It belongs to the Pointed Gothic style, a soar-

ing, aspiring style, more than to any other, to affect flexibility of substance, and ignore the fact that the materials it employs are rigid and unyielding. In the Egyptian and Greek styles, which are essentially stone styles, and whose expression is a grand serenity, the presence of heavy blocks of stone, and their downward gravitation and other properties in a building, are acknowledged by its general air. It does not assume any form uncongenial to the nature of its material. But Gothic forgets the rigidity of stone, and treats it as if it were flexible; which fine, fully-developed Gothic works always seem to be; and the more flowing and fanciful the window-tracery the more charming and poetic it is. Æsthetically, the head of a window can scarcely be too minutely divided or elegantly curved; the most graceful and brilliant forms the imagination can conceive are legitimate there, and fancy may luxuriate with the utmost wildness in its formation. But the more it is made to charm by such means, the more discordant it becomes with the nature, and contradictory of the properties of the unyielding stone, and the more is it unfitted to be executed in masonry. We sometimes hear the flowing loop and flamboyant tracery condemned, because such designs pretend to bend and twist stone as though it were a pliant material, and so falsifies the properties of that material. But the circle-tracery called Geometric, and all tracery except, perhaps, the Perpendicular, does this.

Now, to come to the material I have already named: to assume such forms and express flexibility or elasticity is quite consonant with the nature of wood, which has more and higher structural powers and capacities than the rigid, mineral substance, and is treated agreeably to its own nature and properties when wrought into the most complicated tracery and fantastic foliations of a window-head, because it really *is* flexible in a measure, and could be, if wished, bent to the lines of the most fanciful window-head. How much better fitted, for example, is wood for such a design as that of the rose-window in the south transept of Lincoln Cathedral, which looks like the interlacing of the branches of a tree pressed into the circular boundary form!

While nature, in no light, aërial constructions analogous to the detached and flowing forms of window tracery, has employed stone, which is seen alone in the inert quarry, or some barren hill, the analogies of which do not point to anything in building beyond decorated walls or pillars, with wood have been formed the most beautiful and poetic of earth's furniture and adornments,—the tracery of the grove, wherein it is woven into forms which clearly typify and suggest its application to more artistic and poetic purposes than those of the joiner and cabinet-maker. Carpentry and joinery and cabinet-making do nothing like justice to the noble properties and capabilities of timber, which fit it for forms all but impossible in the stubborn and brittle material of the mason, and adapt it for playing a distinguished part in the most artistic and ambitious works of man.

The employment of wood in the formation of the tracery window, while it gave an impulse to carpentry, would also conduce to the development of Gothic design itself. With wood,—a more obedient minister of the fancy,—might be produced forms more beautiful than would suggest themselves to the mind trammelled by the limited capacities of stone; with wood, the characteristic charms of Gothic tracery might be carried to the utmost pitch of perfection, and a freshness given to modern design. What beautiful rose-windows and windows of all bright and lovely forms could be wrought out in wood at a quarter the cost of those of stone! and how many, even, small churches, in future, might by its introduction, boast windows of forms more imaginative and poetic than had been dreamt of for stone!

In a wooden window, less thickness being required, and the foilings and subfoilings being formed by narrower members than in stone, more of the small spandrels or eyes would be cut entirely through, which would produce greater lightness and richness of effect.

Wood is combustible, I grant; but that is not a sufficient reason for the entire neglect of a material capable of going beyond stone, and carrying design in window tracery farther than it has ever been carried in any period or country. The fact that fire will destroy a wooden window does not destroy its claims to be considered real architecture; for fire would destroy precious marbles, and many other unquestioned materials of architecture. That claim would remain, even if nothing could be done towards obviating or lessening the objection of combustibility. But much could be done by painting, and probably by some kind of glazing, to render wood less liable to take fire; and, so treated, a deal or Baltic pine window would be as durable at least as many a stone one. Some hard woods, as oak, teakwood, baywood, would require only a coating of varnish. But churches seldom take fire, and with ordinary care would never take fire.

Let me not be supposed presumptuous enough to suggest the displacement of stone as the material of Gothic windows. All I would contend for is, the giving to wood a place alongside of it. It appears to me strange that considerations of economy have not long ago prompted this, and caused the occasional use of a material so much less costly than stone, especially in schoolrooms, parsonages, and such like. That it would aid in reducing the cost, and consequently facilitate the supply of decorous places of worship, should not be its least recommendation.

SAMUEL HUGGINS.

THE LLANGOLLEN CONGRESS OF THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

THE thirty-fourth annual congress of the British Archæological Association was opened at Llangollen on Monday, the 27th ult. The proceedings commenced at half-past five p.m., in the County-hall, where the President, Sir Watkin Williams Wynn, bart., M.P., and members, were met by the principal residents and the members of the local committee, of which Mr. Theodore Martin, C.B., was chairman.

Mr. Theodore Martin, in a graceful speech, welcomed the association to the locality of Llangollen. He said the visit had been looked forward to with interest by the residents ever since it became known that Llangollen was likely to be chosen as the head-quarters of one of those interesting and instructive meetings of which they had heard so much. He wished the weather had been kinder to them; but Wales, like other froward beauties, was given to tears as well as to smiles, and he hoped that during the week they would have no reason to blame this essential to out-door enjoyment. He saw by the programme they had sketched out that they proposed seeing what was extremely beautiful, and much that was interesting, and they hoped to receive some instruction from their researches. His researches into antiquity had been of a different nature, and of other countries, and his leisure had been given to other objects. He could, therefore, give them only scanty information, but he looked forward to reaping the benefit of their labours on the objects they were familiar with, but whose records and history he had not been able to ascertain. In the course of the afternoon they proposed to visit the place which at one time attracted no small degree of attention in England, for it was the fashion to make a pilgrimage to the Ladies of Llangollen. He wished them a pleasant week by the banks of the historic Deva.

Sir Watkin Wynn, after expressing his thanks for the honour that had been done him in asking him to preside over the meeting, said,—I am afraid I am not a good archæologist, though in other ways I have had the advantage of seeing a great deal of this neighbourhood. You will be curious to see different descriptions of fortresses which have sprung up in the earliest times. There are to be found near here several ancient British stations. There is one belonging to my friend Lord Harlech, which you will see close to Oswestry. You will also see a castle at Oswestry of later date. When you go to Chirk you will see a fortress which was very much injured in the wars of Cromwell, but is now restored, and changed from a place of war to a very comfortable gentleman's house. As you start off for the source of the Dee, you will see the very old castle of Carndochan, under which was left a gold mine, of which I can show you some products, and near which was found a gold torque, which, unfortunately, is at the South Kensington Museum, but I will try and have it sent here before you leave. You will also see Castell Dinas Bran, which is also a very early fortress, and Valle Crucis Abbey, which was founded in the thirteenth century by Madog ap Gruffydd Maelor. Now Maelor is a very extraordinary place. It is a hundred of Flintshire, although separated eight or nine miles from any other part of the county. At Wattstay, near where I live, you will see the curious old Wats's Dyke. When you go to Bangor Iscoed you will find there the site of one of the earliest monastic buildings. It is curious that although there are very few remains of the ancient buildings, the names of "port," of gates, are applied to certain farms there, thus showing where the gates of the town formerly stood. It is, I believe, supposed that 1,200 monks who lived there were murdered by the Saxons. The church, which was formerly the monastic church, has been altered and improved and restored, until hardly any of the old building is left. It is supposed that the monks all dwelt in small buildings round the church, which have been swept away by time. Round there, within a distance of two or three miles, are some old remains of British encampments, one called Castletown, in Cheshire, another called the Old Castle, close to the boundaries of Maelor and Cheshire, and a third called Bryn-y-pys. These ancient tumuli are, I am afraid, more often visited for the purposes of sport than for the pursuit of the science of archæology. I might also draw your attention to the supposed residence of Owain Glyndwr. I have always heard that he resided where a tumulus now is at Sycharth, on a farm of mine very near the most southerly part of this county. There is close by it a small farm called Pentrecwn, and there, where the kennels are close by the side of the hill, the district all goes by the name of Park Sycharth. This tends to show that there was once a very fine house there, but it is all swept away. Some of you, I believe, are going to Llangedwyn to see a house of the date of the beginning of the last century, an older mansion belonging to the Vaughans having been destroyed about that time. It is very near where Owain Glyndwr's castle was, and if any of you are inclined to see what remains there are, I shall be, of course, happy to give you the facility of doing so. I trust that when you have arrived at the close of your visit to Llangollen, you will not regret having come here, but that you will find in the exploration of ancient places of this neighbourhood that which will repay you for the trouble you have taken.

Mr. Thomas Morgan, F.S.A., the hon. treasurer, then spoke a few words of acknowledgment on behalf of the members of the association for the cordial welcome they had received.

These formal proceedings concluded, the members proceeded to Plas Newydd, formerly the residence of the "Ladies of Llangollen." Here the visitors were cordially received by General Yorke, the owner, who conducted them over Plas Newydd, which is a long rectangular house, overlooking a secluded glen. The front of the house is covered with open woodwork, which gives it the appearance of a timber-framed house. Internally the house resembles a museum, being crowded with antiquities and curiosities in great diversity. In some of the rooms are portraits of Lady Eleanor Butler and Miss Ponsonby (the "Ladies of Llangollen"), who ninety-nine years ago eloped with each other from their paternal homes in Ireland, and fixed on Llangollen as the place of their retreat from the world to lead a life of celibacy, retirement, and friendship. The elder Mathews describes them as dressed like men, with starched neckcloths, black beaver hats, over crop heads of hair, and the portraits bear out this character. Sir Watkin Wynn said he remembered these ladies well, although the last of them died in 1831.

In the evening a public dinner was held in the Assembly Rooms, Sir Watkin Wynn in the chair.

Mr. Osborne Morgan, M.P., in proposing the toast of "Prosperity to the British Archæological Association," said it was their privilege upon occasions like that to be able to throw politics to the wind, and he believed he was speaking the sentiments of his hon. friend and colleague as well as his own when he said that they wished to be liberal in their reception of that society, and conservative in their veneration for those ancient monuments, for the elucidation of which they looked to its members. A Bill had been before the House of Commons in which he was sure they all took a deep interest—the Bill of Sir John Lubbock for the preservation of ancient monuments—for which he (Mr. Osborne Morgan) was partly responsible, and which he hoped, if Mr. Parnell and Mr. Biggar would allow it, would next session become the law of the land. In the course of the debate upon that Bill he had the misfortune to hear a noble lord decry archæology as a barren and useless study, and denounce their forefathers, the ancient Britons, as savages,

who lived upon grain, and who went about dressed in a light airy costume of blue paint. He believed that the answer to all these silly theories was that nothing which concerns the history of our own land, however remote, ought to be a matter of indifference to us. Those lines of Wordsworth, beginning

"The child is father to the man,"

were quite as true of the nation as of the individual.

Mr. Morgan, the hon. treasurer of the association, responded to the toast.

On Tuesday, the 28th, there was an excursion to Castell Dinas Bran, Wrexham, Gresford, and Caergwrle. Starting at 9·30 a.m., the visitors ascended the hill on which is perched Castell Dinas Bran, or "Crow Castle," as it is locally called. Here Mr. E. P. Loftus Brock, F.S.A., read the following paper:—

The history of Dinas Bran Castle cannot be considered except in relation to its local surroundings, since we find that it is but one of a series which appear to have been always in close connexion the one with the other. Chirk Castle, at the distance of but a few miles, is evidently a supporting fortress to this, and this to Chirk; while higher up the valley, at Corwen, is another fortified post remaining in its original condition and not obliterated by a building, of antiquity it is true, but of moderate age in relation to the original occupation of the site. There are also other old cant works of remote antiquity which more or less support these more important fortifications of the valley of the Dee. It will be observed that the last two of these are on the Welsh side of the Dee, while Chirk Castle stands as an outpost at a certain distance on the south side of it. All, however, have the peculiarity, so common in similar places of strength in the Principality, of commanding a view down two valleys, so important for defensive purposes. Very little is known of the founder. I am disposed to ascribe very high antiquity to the occupation of the site by an earthen or rude stone enclosing wall, with its external ditch, probably of but little larger area than that now occupied by the ruined castle, which is of thirteenth-century work. We must, however, dismiss from our minds the old tradition that this was the abode of the renowned Brennus, who made successful war with the Gaulish armies against the then youthful city of Rome. This is incapable of proof, and must be rejected from the domain of history. Nevertheless, the story is worthy of a passing word, since its age is some indication of the remote foundation of the fortress. We need not, either, occupy ourselves with the consideration of the derivation of the name from *bryn*,—a hill. Almost all castles were founded on a hill, and the latter would be no distinction. Brân,—a crow,—is, perhaps, nearer, and I can attest to the truth of Mr. Tregellas's statement that the ruins are still called those of "Crow Castle." However, I am inclined to agree with Pennant, that the little streamlet now all but dry, and called the Brân, gives us the most probable derivation of the name. The stream is now but a hollow bed, but its appearance after a winter's storm is that of a well-washed watercourse. Mr. Tregellas has attached to a capital description of the ruins a carefully-executed plan of them. The walls enclose a parallelogram, 296 ft. from east to west, and 133 ft. within the walls, with an extension on the east side in addition. The entrance has been at the north-west corner, where the bases of two semicircular towers can be clearly traced. This position is remarkable, and the more so when we consider the skilful way in which the approaching path was carried in an ascending spiral from the base up the steep conical hill about 1,000 ft. above the sea level, on which the castle stands. Before the invention of artillery, this ascent must have been one of certain death. Indeed, there is no record of the castle ever having been taken by an enemy. The approach, after passing through the entrance, which once, doubtless, had its drawbridge across the moat, its portcullis and firmly-barred gates, is a long passage arched over with a barrel vault, which still stands firm, but rent and ragged with the storms of more than 800 years. The vault is pierced with three circular holes going through to what was the floor above. These were, doubtless, for throwing deadly projectiles upon an enemy beneath, supposing that the portcullis and gate had been forced. The keep, if such a term can be applied to a building of the age of this, was in the projection already spoken of. It was, probably, a massive square tower, divided from the main inclosing walls by an inner block of buildings, which appear to have extended from a bold semicircular tower projecting from about the centre of the south wall. This is square on its eastern or inner face, and a large hall appears to have extended from it on the east side. Two large gaps are to be found in the ragged masonry on the south side looking into the ditch, but there is little or nothing to indicate their form, since they have been robbed of their freestone. There are indications of a chimney on the south-west corner; but a peculiarity of this part of the building is the staircase between the thickness of the walls on the east side, beside the connecting tower. The stairs have a deep trap or well under their course, now of but little danger, since the stairs are open to the light of day, but a serious obstacle to approach when, as was probably the case, the stairs were only lighted artificially. Mr. Tregellas indicates a deep hollow very apparent on the site on the east of the inclosure. This was probably the basement of some demolished building, and it is to be regretted that it has never been cleared out. Two wells have been spoken of, and there are the usual stories of subterranean passages of great capacity and extent. Many memorials of the later owners of this castle are on record. It was the seat of the Lords of Yale; the founder of Valle Crucis Abbey resided here. Later, in the time of Henry III., it was the sorrowful retreat of its master from his subjects, furious at his having made common cause and met the English, the enemies of the soil, through, probably, the instigation of his English wife. There may be some truth for the supposition that he died of grief and shame, since there is the sorrowful record that he died on the 7th of December, 1269, and also, apparently on the same day, died Madog the Little. They lie buried in the ruined abbey in the valley below the castle. Pennant relates the sad history of the children thus left fatherless, and the treachery of their English guardians. He evidences the truth of the old legend that they were drowned by them beneath Holt Bridge, and couples it with the charming legend of small fairies being seen sometimes by belated travellers hovering over the spot where the evil deed was done. I must refer to Pennant also for the more pleasant record of the fair Myfanwy Vechan, and for the beautiful poem composed by her despairing lover, Howel ap Einion Lygliw. The castle at present, as well as that of Chirk, belongs to Mr. R. Myddelton Biddulph. The rough material of the walls forbids our being able, with very great certainty, to assign the date of their erection. Nevertheless, it may not be amiss to indicate that the mode of construction,—a rough, slaty stone, with dressings of capital freestone,—agrees almost exactly with that of Valle Crucis Abbey. It is reasonable to suppose that Madog ap Gruffydd Maelor either before or after the foundation of that event would have thought of the rebuilding of the castle. We know his wars with the English and common prudence would suggest that his own castle should be as strong as skill could make it. The peculiar rectangular arrangement of the plan is unlike the English type of castles of a little later date, which favours the supposition that it was derived from a different source; but it must be borne in mind that the so-called Edwardian castles owe much of their peculiarities to those of France of contemporary date. Mr. Tregellas adduces evidence of a castle here having been built in the tenth century. Before reading his description, I had noticed that much of the mortar of the walls now standing is mixed with small fragments of burnt slate. Are these the *débris* of the fire? The moat along the two sides is much filled in with the friable particles of the stones, and should be cleared. In the temporary museum at Llangollen is a curious stone reel, of great antiquity, which was found here.

After the party had explored the ruins of the castle, the descent was made to Llangollen, whence the visitors proceeded by the mid-day train to Wrexham. Here they were met by the Mayor of Wrexham and Mr. J. F. Edisbury, who conducted them to the parish church. Mr. Benjamin Ferrey, F.S.A., under whose direction the church was restored a few years ago, had written an interesting paper on the building, and in his absence, it was read by Mr. G. G. Adams. We give an abstract of it:—

This church was dedicated either to St. Giles or St. Silas, and was rebuilt, with the exception of the tower, in the reign of Edward IV. The plan consists of nave, north and south aisles, and chancel, and is remarkable in having an apse, as there are very few examples of parish churches having chancels with apses in the Perpendicular period. After describing the interior of the edifice, the paper went on to state that the clearstory and the aisles are of later date than the arcade itself; the latter probably formed part of the earlier chancel, said to have been burnt in 1457, and in order to promote the building of it an indulgence of forty days for five years was granted by the Pope. The corbels of the early church are still remaining on the spandrel walls of the nave, below the stone brackets of the present roof, and the effect of the earlier church with the pointed roof must have been far superior to that of the present building. Further improvements are said to have been made in the time of Bishop Birkhead, 1513 to 1518. A subsequent Bishop Parfew or Wharton resided much of his time here, and endeavoured to procure a licence to remove his see or cathedral church to this place, of which Leland wrote about the same time:—

"Wrexham hath a goodlie churche collegiate, and one of the fairest of North Wales, but there longeth no Prebends to it."

In Queen Elizabeth's reign, the church was enlarged by the addition of the south aisle, the roof of which is said to have been formed out of a timber gallery which ran along the north side. During the Commonwealth it was desecrated by being made into a prison, according to Brown Willis, and into a stable according to others. A peal of ten bells was set up in 1726. At the east end of the north aisle was the chapel of the Pulestons of Hafodywern, with its altar, niches, and piscina; the last named still survives. After referring to the chantry chapel of the family of Llwynonn, who were said to have been the first to respond to the call for rebuilding the chancel, and that their teams were reported to have carried the first load of stone, the paper went on to say that there was nothing very remarkable in the architecture of the exterior of the body of the church, which was of the usual Perpendicular type, having roofs of low pitch, the clearstory and aisle walls surmounted by embattled parapets, separated by buttresses and pinnacles. The good feature of the church was the western tower, justly celebrated for its beautiful proportions and details. It was styled one of the seven wonders of Wales, and when it was commenced was unknown; it was, however, completed in 1506. Among the numerous examples of grand Perpendicular towers which abounded in Somersetshire, there were none to be compared with the tower of St. Giles, Wrexham, for massiveness and good proportions. Very few towers, also, could boast of such a number of niches still filled with unmutilated figures.

Mr. Loftus Brock referred to a tradition in reference to the remarkable old eagle lectern of brass, to the effect that it was abstracted from Valle Crucis Abbey. This tradition was disproved by the fact that the eagle was given by John ap Gryffydd, of Plas-y-Stewart, in 1524. When the apse was added the work was left in an unfinished state. The church formerly belonged to Valle Crucis Abbey, and it is probable that the work was in progress at the time of the dissolution of the abbey, and was consequently left unfinished.

Mr. M. H. Bloxam, F.S.A., made some observations on the monuments. He said there were only two monuments in the church of which he need take notice. One was a monumental effigy, hardly discernible, in the porch, and the other was a very much abraded effigy, beside which he stood, yet it was a very peculiar effigy, and there were only two others similar to it that he had found throughout his explorations. This was the effigy of Hugh Bellot, Bishop of Bangor, and afterwards Bishop of Chester, who died in 1596. One peculiarity of this monument was that it had some bearing on the vestarian controversy of 300 years ago, and which had been again aroused in these days. They might remember the celebrated vestarian controversy that arose in the reign of Elizabeth, in 1564. The effigy represented the bishop, clad partly in the pre-Reformation vestments, in rochet, chimere, and lawn sleeves, which were properly called vestments; but over that he wore the academical habit of a doctor of divinity of Cambridge. He also wore a fur or ermine tippet falling down behind the shoulders, and round the neck a short ruff. There were only two other effigies similarly clad. One was that of Archbishop Grindall, in Croydon Church, which was destroyed by fire a few years ago; the other

that of Bishop Carey, in Exeter Cathedral; and if they referred to Speede's "Counties of England," they would find among the illustrations a doctor of divinity exactly so depicted. These were the only three episcopal effigies represented partly in vestments and partly in the academical habit. There was in the porch a recumbent effigy of a knight, bare-headed, with curling locks on either side of the face. The armour was not well defined, but there was a shield in front of the body. This was peculiar to the effigies of Welsh knights; for whilst effigies of English knights of the fourteenth century had the shield on the right of the body, the Welsh effigies generally had the shield in front of the body, and covering it, as they saw there. The shield is distinguished by a lion rampant, and the legend, "Hic jacet Keneverike ap Hovel." The right hand grasped the hilt of a sword. He (Mr. Bloxam) first visited that church forty-four years ago in passing through Wrexham, and saw that effigy for the first time. He was solemnly assured by the custodian of the church that it was the effigy of Owain Glyndwr; and when he ventured to observe that Owain Glyndwr must have been an extraordinarily long-lived man, inasmuch as this effigy belonged to the fourteenth century, the attendant looked at him with an air of incredulity.

The party then retired from the church, and as they were passing through the porch, attention was called to the remains of a painting on the wall facing the doorway, which Mr. Bloxam pronounced to be of fifteenth century work, the subject being our Saviour with His hands bound before Pilate, and surrounded with evidence of His Passion.

After luncheon at the town-hall, the party went in carriages to Gresford Church, over which they were conducted by the Ven. Archdeacon Wickham, the architecture and monuments being commented upon by Mr. Loftus Brock, Mr. Bloxam, and other gentlemen. Gresford Church is said to have been founded by "Ithyl son of Eunydd, son of Gwenllian, daughter of Rhys ap Marchan, styled the heiress of Dyffryn Clwyd." The architecture of the church is principally late Perpendicular (the tower bearing date 1506); but it contains some interesting old monuments. Mr. Bloxam, as is his wont, demolished some popular local traditions as to certain effigies which had found a resting-place in the tower. These he declared to be not sepulchral effigies at all, but external imagery from some church. He also drew attention to a very interesting sepulchral effigy beneath an arch in the south aisle, of a date anterior to the present structure, being of the fourteenth century. This was recumbent, in a hooded hauberk and chausses (or stockings) of a peculiar kind of studded mail, not to be found in England; beneath the hauberk were traces of the aketon and gambeson. The latter Mr. Bloxam explained to be padded, stitched in longitudinal parallel folds, very similar to the padded accoutrements worn by cricketers at the present day. The right gauntlet appeared to be of this kind of defensive armour. Over the hauberk was a sleeveless surcoat. The right hand was represented grasping the sword. The shield which covered the body was charged with a dragon rampant. The inscription on the verge of the slab, on which the effigy reposes, is said to be as follows:—"Hic jacet Madoc ap Llewelin ap Gruff." This Llewelin is stated to have died A.D. 1331. The old yew-tree was much admired; it is said to be as old as the Roman occupation, is 60 ft. high, and nearly half that number of feet in girth; but there are many sceptics as to its age. The rood-screen, stalls, and mouldings attracted much attention. The stained-glass windows were much admired. They were said to have been brought from Basingwerk Abbey, a statement which was much questioned.

The excursionists were next driven to see the Roman remains at Caergwrle, which were briefly described. The castle was, originally, a Roman walled castrum, which in Mediæval times was repaired, added to, and otherwise adapted to altered requirements. Returning to Wrexham, the party took train to Llangollen, which was reached at 7 p.m.

An evening meeting was held in the Assembly Room, when Mr. Thomas Morgan read an interesting and learned paper on "North Wales as shown on a map of the thirteenth century." Mr. W. de Gray Birch followed with a paper on "The Welsh Seals of English Sovereigns," and gave a description of several original copies of charters granted to various Cistercian abbeys. Mr. Birch had had intrusted to him for exhibition a large and valuable collection of ancient and other documents, a copy of the Laws of Howel Dda (Howell the Good), and a large book upon heraldry, known as the "Salesbury" pedigree, all the property of Sir W. W. Wynn, to whom a cordial vote of thanks was accorded by the meeting for his kindness. The book of heraldry was, at the request of the chairman, further explained by Mr. Tucker (*Rouge Croix*). Mr. Birch, in his paper, pointed out that Wales was peculiarly the home of the Cistercians, who were attracted by the rugged wildness of the scenery and the opportunities it afforded to carry out their austere vows. In the twelfth century nearly a hundred houses were founded, and the thirteenth century found them progressing, but the date of their foundation was not known until he (Mr. Birch) was fortunate enough to discover in the British Museum a document showing the dates of the foundation of every Cistercian abbey in Europe. This document would be useful alike to historians and to architects. The last paper read was by Mr. J. Tom Burgess, F.S.A., the subject being "Offa, and Offa's Dyke."

On Wednesday, the 29th, the members and visitors left Llangollen at ten a.m. and proceeded to Offa's Dyke, which was described by Mr. Tom Burgess, who pointed out the features of its construction, and its manifest weakness as a military work, and he also pointed out the site of Wat's Dyke at the back of Wynnstay. Mr. Burgess said that he had recently had to consider the great earthworks at Tamworth, which were popularly attributed to Offa, but which he believed were only the vallum of a Roman camp, strengthened, it might be, by the great Mercian king. If he made these fortifications, it is strange that no mention was made of them when the founding of a small church was recorded. History was silent respecting the formation of the dyke. The dyke itself is a broad embankment forming a rampart some 20 ft. to 25 ft. wide, from 8 ft. to 10 ft. high, with a broad fosse on its western face, from which the earth was taken to form the dyke. The outline of the dyke is irregular, and this has been caused by the planting of trees and the denudation of the embankment during a thousand years. The dyke commences close to the river Wye, not far from Chepstow; it runs through the counties of Hereford and Radnor into that of Montgomery; it passes through North Wales, by Buttington, where it is lost for five miles, the channel of the Severn probably serving for that space. It appears again by the Church of Llandysilio. It goes by Trefy Clawdd, Chirk, Ruabon, Brymbo, through the parish of Mold, pointing to the Clwydian Hills, where it is lost. All along its course there are a number of small artificial mounds, believed to have been posts of observation, and possibly small military forts. Mr. Burgess held that the dyke was a defined boundary in Saxon times between the Mercians and the Welsh.

A short but pleasant drive brought the party to Chirk Castle, which was inspected, by permission of the owner, Mr. Middleton Biddulph. The visitors were shown over the state-rooms, and examined with great interest all their treasures of art and antiquity. It is now substantially an Elizabethan castle; but there are remains in it of the original Edwardian structure, to which Mr. Loftus Brock assigns the date of about 1350, probably a little earlier. Over a door in the modern portion of the courtyard is the inscription,—"This new building and the tower was built, all in one year, by Thomas Myddleton, knight, 1636." Amongst the treasures to be seen in the house is a cabinet, with paintings ascribed to Rubens, and said to have cost 10,000*l*., the gift of Charles I. to Sir Thomas Myddleton.

After luncheon, the party returned to Llangollen, *viâ* Pont Cysyllitau, visiting Valle Crucis Abbey and Eliseg's Pillar. At the former Mr. Loftus Brock read a paper, of which we give the substance on another page.

Mr. Bloxam supplemented Mr. Brock's paper by references to the monumental sculptures of the building, and Mr. W. W. E. Wynne, F.S.A., also gave an interesting account of the excavations made in the ruins several years ago by himself and the late Viscount Dungannon, and gave in detail the discoveries of ancient relics then made.

Eliseg's Pillar was described by Mr. Bloxam, who said it was one of the finest post-Roman inscribed pillars extant. It appeared to have been erected by Concenn or Cyngen, in memory of his great-grandfather, Eliseg, father of Brochmael, Prince of Powis. This prince is stated to have been killed at the battle of Bangor Iscoed. It was once 12 ft. high, but was thrown down during the Rebellion, and was replaced in 1779. It is now 6 ft. 8 in. high. Mr. Bloxam suggested that casts should be taken of this interesting monument, in order that its inscription might be viewed in many lights, so as to ascertain the correct reading of the inscription, which at present was somewhat obscure.

An evening meeting was held in the Assembly Room, under the presidency of the Bishop of Grahamstown. Mr. John Rhys, Professor of Celtic at Oxford, read a paper on "Two or three Names from the Neighbourhood visited by the Association bearing on the history of Religion among the Kymric Celts." Next followed a paper by the Rev. M. Margoliouth, M.A., LL.D., Ph.D., the subject being, "Whence the appellation of the term Kymry; a problem for British Philological Archæologists." The theory propounded by the reader was to the effect that the appellation Kymry was derived from the Hebrew King Omri. Professor Rhys severely criticised the paper. Dr. Phené then related some of the results of his researches and explorations in Mycenæ.

On Thursday, the 30th, the excursionists left Llangollen in carriages soon after 10 a.m., and visited the supposed site of Owain Glyndwr's house at Sychant, where Mr. G. R. Wright, the hon. congress secretary, read an interesting historical sketch of Glyndwr's life and times. The site is marked by a tumulus on the roadside, now covered with trees, and rising to a height of 30 ft.

On arriving at Corwen, after a ride of ten miles through magnificent scenery, the visitors proceeded to the church, where an explanatory paper was read by the vicar, the Rev. W. Richardson. The church partakes of the Early French rather than of the Early English style, and has been restored under the direction of Mr. Benjamin Ferrey. In the opinion of Mr. Brock, the church was originally cruciform, but it was now completely altered in its arrangements, the south transept being entirely swept away, and south aisles added the whole length of the nave, with a new arcade of heavy arches and pillars dividing the one from the other. On the north side of the chancel is a curious monument to the memory of Jowerth Sulien, vicar, dating from about the end of the fourteenth or beginning of the fifteenth centuries. A rude cross, cut in the outside of one of the walls of the church, is said to be a true mark of Owen Glendower's dagger, which he threw from the precipitous cliff just behind the town. Built in the wall of the church is a rude piece of stone, as to which tradition says that all attempts to build the church in any other place were frustrated by the influence of certain adverse powers till the founders, warned in vision, were predirected to the spot where the pillar stood. Much attention was attracted to an old oak chest in the vestry, made out of the trunk of some bygone giant of druidical groves. The dimensions of the tree may be gathered from the fact that the trunk is 25 in. across, 29 in. deep, and is 4 ft. 8 in. long.

Luncheon was served in the British schools, and was enlivened by John Roberts and his four sons with some ancient Welsh music. Resuming the carriages, a pleasant drive of a mile along the Holyhead-road brought the visitors to the small fifteenth-century chapel at Rûg. The octagonal shaft of the churchyard cross still remains, though the cross added at its restoration is thought to disfigure it. The interior of the chapel is most striking, though the structure has no mark of distinction between nave and chancel save a Carolian screen with a perforated fringe. The cornice is of later date, and belongs to the period of the general restoration of the interior in 1637. The bench ends are of the most singular pattern, rising from a solid carved beam on the floor in a crescent-shaped support to the seat. Mr. Bloxam said the chapel abounded with interest. When he visited it a few years ago he thought, judging from the exterior, that it was a newly-erected building, and had he not been otherwise informed he should have passed it by unnoticed. It was, however, a structure of considerable historical interest in regard to a period the buildings of which date were now being rapidly destroyed. He quite agreed in the opinion that had been expressed that the roof had been imported, and that the rest of the "fittings" were of greater antiquity. He hoped the chapel might long be in existence, inasmuch as many such interesting historical memorials were fast disappearing. The party then re-

entered the carriages, and having ascended the Gaer,—an ancient British encampment on the other side of the river from Corwen,—they returned to Llangollen.

The evening meeting was again presided over by the Bishop of Grahamstown. Papers were read by the Rev E. Owen, "On certain Circular Hut Dwellings in North Wales," and by Mr. G. G. Adams, F.S.A., "On Medals Commemorative of Events in British History."

A paper was also read by Dr. Phené, "On Some Similarities between Tre'r Caeri, near Pwllheli, North Wales, and Structures in Brittany, and in the East." A carefully-made plan of the constructions at Tre'r Caeri,—the most perfect relic of the kind in Britain,—was first described. It was then compared with the Serapion at Ephesus, then with similar temples at Puteoli, Pompeii, and Alexandria, and found to have the same features and arrangements, but in a ruder form. It was shown that the worship of Serapis, the sun-serpent deity, had been introduced from Western Asia into the Levant and Western Europe, and the worship of this deity was in each place accompanied by colossal figures, some of which still existed, and the love for which is a marked feature among the people of those localities to this day. A third feature of the localities of this worship was found in similarity of traditions of destruction by fire and water, many of these being known historical facts, as though the very elements had united to expunge the offensive worship. Dr. Phené then described a careful examination he had lately made of monuments and sculptured works in Asia Minor, and the islands of the Ægean Sea,—places which had been in constant communication with the Phœnicians, or had been colonised, or at least occupied, by them, and in which, as in the islands of Thasos, Naxos, Antiparos, &c., he found unaccounted for colossal sculptures which he considered Phœnician, and near them pre-historic relics like those of Brittany. He then showed, from ancient traditions mentioned by Apuleius, that the antique religion of these people was conveyed intact to Marseilles, the former Massalia, where he found existing at the present day ceremonies incorporating the Phœnician worship and emblems. He supported his statement by references to the Phœnician tablets found at Puteoli, and the celebrated one in Phœnician characters found on the site of the Temple of Diana, at Marseilles, which gives a tariff of the fees payable to the priests of Baal, for the animals used in sacrifice. He also referred to the various objects of antique Phœnician workmanship placed with the latter in the Museum at Marseilles. He then followed this course as the old road of horse conveyance for tin from Brittany to Marseilles, referred to by Strabo and others, and finally showed customs similar to those near Marseilles still traceable in Brittany. The grand culmination at the present day was a great Dragon ceremony on this route, at which the bishops and a large number of clergy officiate, in a place adjoining a town, the emblems of which are clearly sun emblems, and near which were a temple and sacred locality. The diagrams exhibited remarkable monuments and emblems along the route from the Archipelago to Brittany.

On Friday, the 31st, the members left by special train for Dolgelly, whence the excursionists proceeded to the ruin of Cymmer, or, as it is now called by the people of the place, Vanner Abbey, in the lonely and secluded valley of Glanllwyd. This, like Valle Crucis, was a Cistercian monastery, and was founded in 1198 by Griffith and Meredydd, lords of Merioneth and sons of Cynan, who was the son of Owain Gwynydd, Prince of North Wales. Antiquarians have been much puzzled by the fact that, although it is a house of the Cistercian order, the arrangements are not like those usual in Cistercian houses. Instead of a cruciform minster, with its transepted chapel and central tower, there is a continuous nave, and distinct traces of a continuous north aisle and the anomaly of a western tower opening into the nave. An interesting and valuable paper on the Abbey was read by Mr. E. P. Loftus Brock, who has come to the conclusion that none of the work now standing belongs to the original building,—or, at least, is of the date of the foundation, and that it cannot be ascribed to an earlier date than the end of the thirteenth or the beginning of the fourteenth century. Mr. Talbot, however, was of opinion that some of the work was of a much earlier date. The supposed abbot's house was afterwards inspected. Mr. Wynne gave an account of the history of the abbey, so far as it is known.

After luncheon at Dolgelly, visits were paid to the parish church and to the so-called Parliament-house of Owen Glendower. The house was said by Mr. Brock and other antiquaries to be certainly not earlier than the reign of Henry VIII.

Proceeding by rail to Bala, the visitors inspected the ancient manor-house of Rhywaedog, and afterwards, by way of contrast, Palé, the modern residence of Mr. Henry Robertson, M.P. In the vicinity, however, are many objects of archæological interest, including Llanderfel Church, with its curious nondescript effigy, and these having had their meed of attention, the party returned to Llangollen.

On Saturday last there was an excursion to the Vale of Clwyd, Llanrhaiaddr, Denbigh, and Ruthin. On Monday last Mostyn Hall and Basingwerk Abbey were visited. Returning to Llangollen the closing meeting was held in the evening, though many members went on Tuesday, by invitation of the president, Sir Watkin Wynn, to Llangedwyn, *viâ* Oswestry. We may notice more fully in our next some of the later proceedings of the Congress, which appears, on the whole, to have been a great success, although, owing to the remoteness of the locality, it has not been so largely attended as usual. The weather, too, was at times very unfavourable.

PRIVATE ARCHITECTURE IN BERLIN.

THE progress made in recent years in the architecture of private residences in Berlin is unmistakable, showing itself not only in a tendency, which becomes more apparent every year, towards a simple and pleasing, yet effective style, but also, what is remarkable for North Germany, in an endeavour to aid that style by the employment of good, even if expensive, material. By the side of terracotta, which is being more extensively employed by architects than ever, several experiments have more recently been made with pure sandstone for façades. The latter are partly in a simple and sober style, but in other instances they are richly ornamented, and even artistically executed.

One of the most handsome buildings of the latter description is the mansion belonging to Lieutenant-Colonel von Tiele-Winckler, a man of culture, and the owner of fine estates in the province of Silesia and in the grand-duchy of Mecklenburg. The architects are Herren Ebe and Benda. The model of this mansion, of which we give an illustration, created quite a sensation at the Vienna Exhibition (1873), where it carried off a prize medal for art. The whole façade, including the frieze executed by the sculptor Engelhard, of Hanover, and extending above the whole length of the ground-floor, is of Oberkirchen sandstone, a material especially suitable for monumental works, on account of its close grain and durability. The much-prized Column of Victory at Berlin is of the same material. The style of the façade bears the character of Northern Renaissance, both as regards arrangement of the whole and its details. There is nowhere a reminiscence of the antique temple. The whole structure corresponds more to modern requirement than the forms of Early Italian Renaissance; vaulting is used in its interior, the artificial imitation of beams being intentionally avoided.

The steeply sloping roof, more suited to the climate of Northern Germany, has been brought into harmonious agreement with the façade by gables and windows. On that account the entablature has not been made especially prominent, as is generally the case, especially in Italian palatial buildings. The portal is ably treated, and the whole façade is by the disposition of the windows grouped into a whole, quite contrary to the Italian Renaissance palace, which shows as the fundamental type a quiet arrangement side by side of equal axes. To this must be added, further, the powerful treatment of the ornamentation, peculiar to the Northern style, meant for Northern light, and designed especially for execution in sandstone. This forms the feature *par excellence* of the Northern façade, it having been, not unjustly, objected to the buildings of the Berlin stucco period that they bear distinct marks of weakness both in ornamentation and composition.

The proportions of the building are above the average. The ground story is 19 ft. in height. This enabled the architect not only to have the greater portion of that story vaulted, but also to insert a handsome frieze, which forms an especially artistic adornment of the also otherwise richly decorated front. The other stories are in proportion to the ground-floor.*

The frieze presents such striking features that it deserves a short description. The *motif* is taken from the Edda Saga, and was selected by the proprietor of this handsome mansion himself, who thereby once again proved that there are among the moneyed classes those who have a keen sense for art. Indeed, artistically trained minds have become tired of the somewhat used-up, and often distorted and misapplied, allegories of classic times; and the tendency of drawing forth from the inexhaustible bourn of the Scandinavian saga world is increasing in Germany. The sculptor Engelhard of Hanover has the merit of being one of the first who have endeavoured to represent the more prominent episodes of the Edda Saga by the plastic arts, and to him as the most eminent of his school was intrusted the execution of the sculptures for the façade as well as the interior. In the centre of the great frieze is seen "Odin, summoning the warriors to Valhalla," who have earned that honour by a hero's death. To the left is represented the mortal combat, Valkyres riding before, and carrying off the fallen heroes from the field of battle to Asgard, where they are received by Bragi, and conducted by Odin. Here Freyja, the powerful goddess of heavenly beauty, and Iduna, the goddess of everlasting youth, await them. To the right Heimdall blows the horn, and calls for the last fight; the Giants rush forth, Odin and Thor fight with the wolf Fenris and the serpent Midgard.

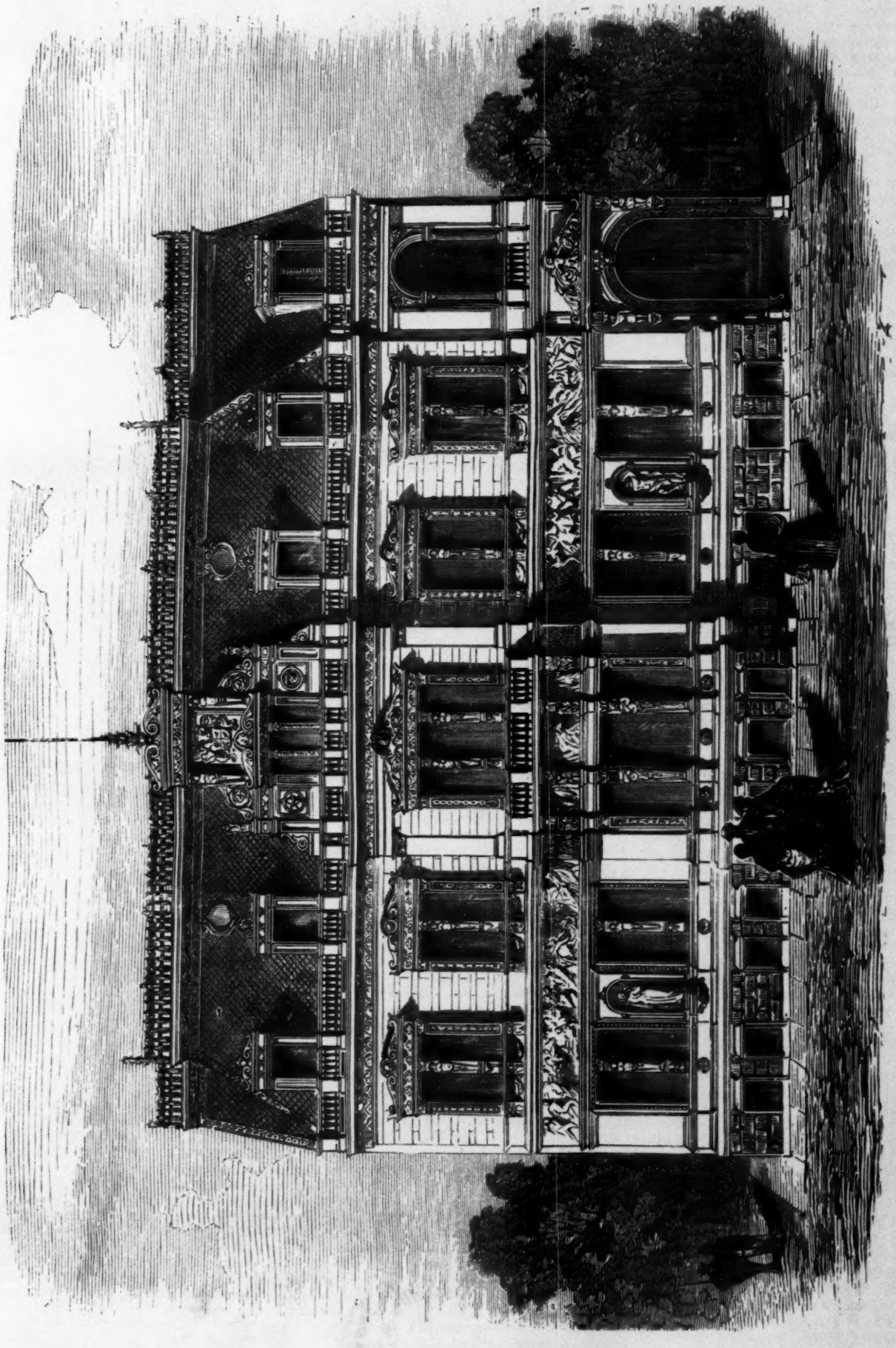
The whole composition bears a monumental character, Northern purity of form combining with extraordinary energy of movement. The relation to the Edda Saga is also expressed in the various figures adorning the building. The niches of the ground-story contain the statues of Odin and Thor; over the portal is the half-figure of Baldur, the god of light, surrounded by rays of light and sun-flowers. The side figures of the entrance are Sol, the sun, and Mani, the moon. The window piers have, as capitals, originally conceived heads; in the ground-story, being the gentlemen's abode, heads of warriors, Giants, and Druids; in the first story, the domain of the ladies, heads of Valkyres. The ornamentation of the window pilasters consists of bouquets of roses, very delicately treated.

The façade towards the court, as well as the stables, which should not be wanting in any nobleman's mansion, and the walls enclosing the court and garden, are executed in simple yet corresponding terracotta, calculated to assist the effect of the interior by suitable points of view. Thus, in the axis of the vestibule is a beautiful terracotta group in a niche, which is framed by columns of polished granite, a composition often found in the better class of Italian mansions. In the axis of the ball-room rises at the opposite garden-wall a large vaulted niche with a fresco representing a landscape as background. The enclosing walls of the court and garden are adorned with perspective architecture in *sgraffitto* style reminding us in their principal idea of Pompeiian walls, which contribute so much to make us forget the confined space in antique works.

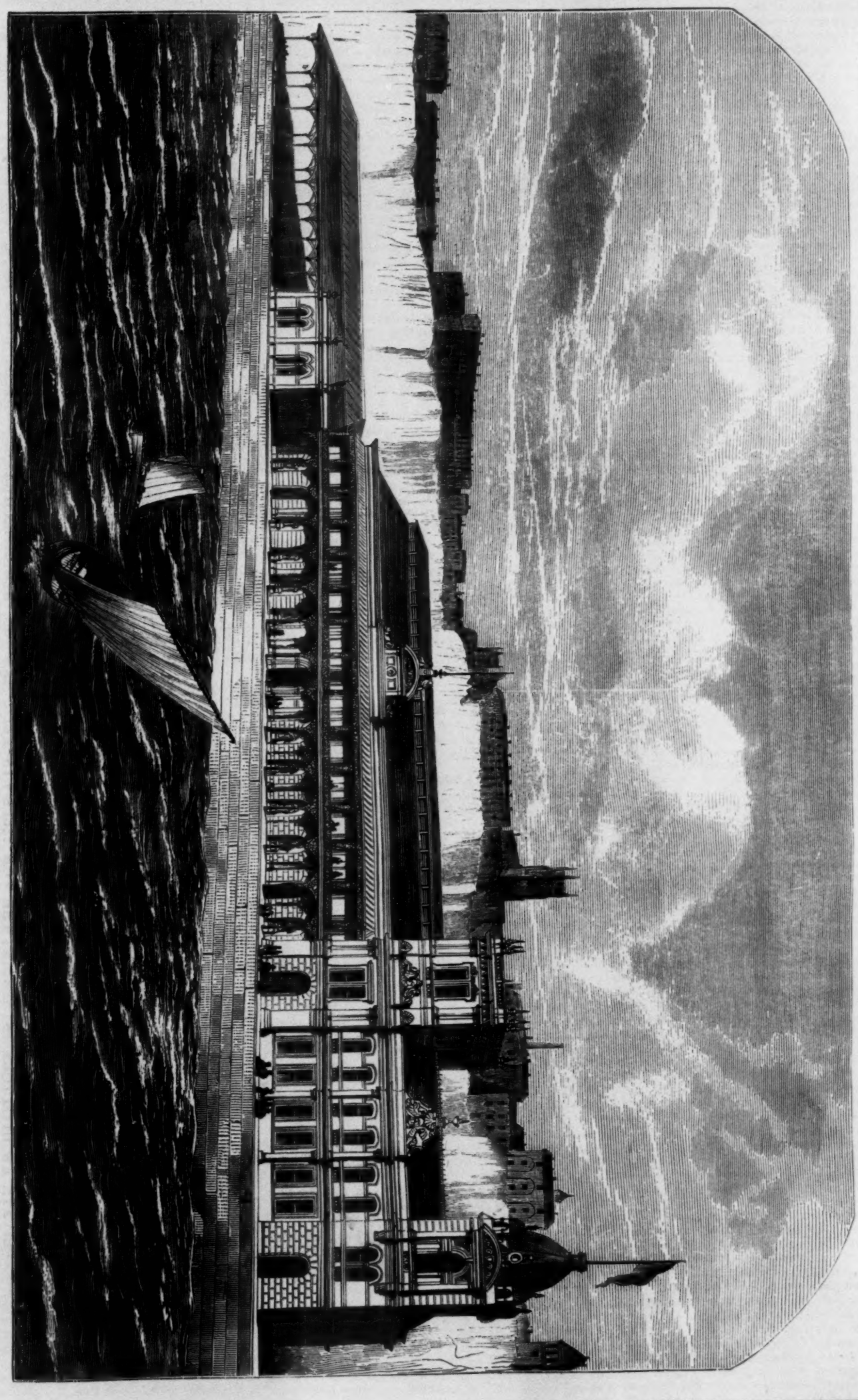
The artistic representation of the interior corresponds with the means expended for beautifying the exterior. Thus the barrel-vaulted dining-room contains a wall frieze in bronze, charming figures of children frolicking about in meadow and forest. The drawing-room with its walls carved in wood, lightly coloured and gilt; the ball-room with its floor as smooth as marble and its richly painted ceiling; the upper ladies' rooms with panels clothed in rich silks; the broad marble staircase with wrought-iron balustrade; the principal entrance with high socle of polished red granite,—all these combine to create the effect of a solid splendour which, not being overloaded, leaves perfect liberty for artistic representation to produce a harmonious whole.

Provincial Societies of Artists. — The autumn exhibition of the Royal Birmingham Society of Artists was opened to the public on the 30th ult. It includes 828 works, many by well-known artists.——The Royal Manchester Institution opened to the public its exhibition of modern works of art on the 5th inst.——The Brighton fourth annual exhibition of modern paintings opened on the 6th inst. Here there are 854 works. Mr. E. W. Cooke, R.A., sends five important pictures.

* The passengers in the illustration are drawn too large.



PRIVATE ARCHITECTURE IN BERLIN: THE VON TIELE-WINCKLER MANSION, REGENTENSTRASSE.—HERREN EBE & BENDA, ARCHITECTS.



THE MARGATE SKATING RINK, BATHS, AND AQUARIUM, AS PROPOSED.—MR. BEDBOROUGH, ARCHITECT.

THE MARGATE SKATING-RINK, BATHS, AND AQUARIUM.

A COMPANY was last year formed and registered, under the title "The Margate Skating-rink, Concert Hall, Swimming-Baths, and Aquarium Company, Limited," the object of the company being to erect suitable buildings for the above, with the addition of reading, billiard, and refreshment rooms. We notice in the prospectus issued, that the want of such an establishment at this popular watering-place has long been felt, and that it would doubtless be patronised by the large number of visitors to Margate, which, during the season, reaches 50,000 visitors weekly. This seems a very large number, by the way, but we need not stop to question it.

Sufficient capital having been subscribed to justify the directors in commencing the works, a central and desirable site was obtained between the "Town Jetty" and "Fort Point," having a sea frontage exceeding 730 ft., this having been lately reclaimed by the construction of a sea-wall. There are approaches, both from Fort Hill, Cliftonville, and Bankside, Margate, adjoining the jetty. Within the sea-wall, a wide promenade has lately been constructed, entirely in cement concrete, and extending the whole length of the sea frontage. At the Fort Hill end a flight of steps has been erected, leading up from the promenade to Fort Green. A large skating-rink has also been constructed in wood and iron, and covered with corrugated iron, the sides and ends being enclosed with sliding doors to every alternate bay, for the free egress and ingress of skaters. There are also dining-rooms, grill-room, and refreshment-bars; the space under the promenade, for the length of the rink, is appropriated to private dining-rooms, &c.

On the north side of the enclosed portion of the rink a pretty Italian garden is being now formed, while billiard and smoking rooms will quickly follow.

Two large sea-water swimming-baths are being constructed: that for the gentlemen being 140 ft. by 120 ft., and holding about 504,000 gallons of water; and the one for the ladies 90 ft. by 80 ft., and capable of containing at the neap tide about 200,000 gallons. The water will flow direct from the sea into the baths on every returning tide. The baths will be partly covered in at the top all round, the centre portion in each case being open to the sky. Attention has been given to the arrangement of the dressing-boxes, retiring-rooms, attendants'-rooms, and so on. Directly the baths are completed and open to the public, the permanent concert-hall, we are told, will be commenced, to be followed later on by the aquarium; this latter it is proposed to erect on the site known as "No Man's Land."

At present, daily afternoon and evening concerts are given in the enclosed and covered portion of the skating-rink, which is pleasantly decorated, the timbers of the roof and sides being stencilled in various designs and colours. The rink-floor is laid on Portland cement concrete, the Wouldham Portland cement, with which a good surface is obtained, being used. In the cement (at the time of laying it) is mixed a preparation recently discovered, which not only hardens, but gives, it is claimed, an apparently flinty surface to the floor.

As will be noticed, it is proposed by the company to erect the several buildings embraced in the scheme in sections, using and working each one as soon as finished.

The exterior it is proposed to face with red bricks, stone, and cement. Over the dining-room in front it is contemplated to have a promenade, with covered awning above. A verandah, 6 ft. wide, will front the dining-rooms.

Our engraving shows the complete range, as proposed, fronting the sea. Mr. A. Bedborough is the architect.

Liverpool Street Improvements.—The Liverpool borough engineer has reported that the street improvements determined upon by the corporation will involve a net cost of 1,073,845*l.* The acquisition of land is set down at 1,196,278*l.*, and the cost of works, 137,862*l.*; but a sum of 260,295*l.* is deducted as the estimated value of surplus land. The principal improvement is the construction of a high-level road from the plateau of the public library in William Brown-street to Dale-street, the cost of which is estimated at more than a quarter of a million sterling.

ADDITIONAL NOTES AT THE BRITISH ASSOCIATION CONGRESS.

To the general view of the proceedings already given, we add a few notes of some of the papers read and discussed at the recent meeting of the British Association at Plymouth.

Sir W. Thomson read a paper, "On the Effect of Transverse Stress on the Magnetic Susceptibility of Iron." The paper described the results of experiments made by Messrs. Andrew and Thomas Gray, by aid of a Government grant of 100*l.* These proved that the effect of transverse stress was to diminish magnetisation while the strength of the magnetising current was below a certain critical value, and to increase it when the current was above that value.

Mr. George Dines read a paper, "On Differences of Rainfall with Elevation." During twelve months he had carried on experiments to determine whether an elevated rain-gauge collected more than one on the ground. For this purpose he had placed a 5-in. gauge on the top of a tower 101·28 ft. above Ordnance datum, and an 8-in. gauge 4 ft. above ground and 54·54 ft. above Ordnance datum. From August 1, 1876, to August 1, 1877, the amount collected was,—in upper gauge, 24·60 in.; lower gauge, 31·30 in.; the proportion being as 100 in the upper to 127 in the lower. Variations in the state of the wind, density of the rain, &c., produced different comparative results. His observations appeared to show that the difference in the amount of rain collected was due to the wind at the higher level, causing an eddy about the rain-gauges, and not to any deficiency in the amount of rainfall at the higher level. He felt, however, that the additional evidence he could adduce was not sufficient to force the same conclusion on the minds of others, and after reading Mr. Symons's "British Rainfall for 1876," he placed a gauge of 24 in. on the top of the tower near the 5-in. gauge. The results since then had been,—5-in. gauge, 3·18, or as 100; 24-in., 3·56, or 112; 8-in. (near ground), 3·82, or 120. As long as this question remained an open one, it would be a standing disgrace to meteorologists.

In the course of a discussion, Mr. Glashier condemned the use of the 5-in. gauge, preferring the 24-in.

In the section devoted to Economic Science and Statistics, a discussion upon thrift led to a general expression of opinion that the Government and the municipalities should invite the poor to take part in their loans, as was done in France.

Sir George Young proposed some modifications of the Factories Act, so as to prevent overwork and save trade from undue interference.

Dr. Hancock proposed that families should be saved from the mischief arising from the constant inebriety of their parents. He quoted some Irish statistics, showing that out of 14,416 commitments of men of ascertained bad character and proceeded against on indictment, and also of cases summarily disposed of, no less than 5,602, or 39 per cent., were commitments of habitual drunkards. Amongst women, out of 4,477 commitments, those of habitual drunkards were 1,053, or 32 per cent. In the case of men the commitments were five times the number of known thieves, and in the case of women three times. This indicates one of two conclusions—either that the habitual drunkards are a very numerous class as compared with the thieves, or else that owing to the shortness of the punishment for drunkenness the same habitual drunkards are committed over and over again. It is obvious, said the lecturer, that if the habitual drunkards are more numerous than the known thieves, something like the punishment of thieves should be applied to such a formidable class. If, on the other hand, it is some persons being repeatedly committed within the year that swells the number, it indicates how ineffectual the petty imprisonments inflicted are to reform and check the habitual drunkards so punished. The remedies proposed were—1. Punishment for drunkenness should take the form of more lengthened detention, with a view towards reformation; in other words, that punishment should be of a reformatory character. 2. When reformation became hopeless the drink-craving should be treated as a physical disease, to be treated like any other form of insanity. 3. The protection of children and wives of men repeatedly convicted of drunkenness should commence at an earlier stage than at present by the men being, after imprisonment, at first let out on license, like younger persons released from reformatories, with a certain supervision and watchfulness over their conduct to their wives and children to see that they were adequately cared for according to the means of the parent.

In Section D, Biology, the Rev. Professor Beal exhibited and described a soap-stone image, which Mr. Brent had bought at a broker's shop in Plymouth, and on inquiry the broker said he bought it from some sailors who came from Pekin. The figure, Mr. Beal said, was a remarkable and perfectly unique one. He doubted very much whether it was a figure of Buddha, as it possessed none of the characteristics of Buddha. Over the head of the image was a figure of the descending dove,—one of the most singular features that could be seen in any Chinese figure. There was a dove also on each side. He believed this figure of the dove arose from the "three rays of the rising sun,"—a frequent Eastern figure. There was much accumulative evidence, almost amounting to demonstration, to establish this point. From the Vedas, from Buddha's crown at Ceylon, from Japan and various other Eastern countries, Mr. Beal brought corroboration of his theory. The most interesting proofs, perhaps, were adduced from the Prince of Wales's feathers and the Royal arms of England. With respect to the Prince of Wales's plume, there was pretty good authority, as brought forward by Mr. Wheeler, to believe that it was an Eastern symbol. The question was whether "Ich Dien" was "I serve" or "I shine." He was borne out in this idea by the Sanscrit derivation of "Ich Dien," which meant "I shine," and it was very reasonable to conclude that the three feathers were simply the three rays of the sun, "I shine" being the best motto that could be assigned to such a figure. The trident in the Royal arms was derived from the same idea. It was, therefore, possible that the figure of the descending dove was originally borrowed from the universally diffused emblem of returning day,—the three rays of the sun,—which was derived from one of the earliest myths of the Eastern world.

Mr. Hartshorne observed that one piece of evidence adduced by Mr. Beal—that of the spindle whorls found by Dr. Schliemann at Hissarlik—was not to be considered as in any way supporting the view which he had enunciated regarding the method of representing by lines or other emblems the rays of the sun. Dr. Schliemann, he believed, did not consider that this theory was at all tenable. One of the spindle whorls found by Mr. Hartshorne when he visited Hissarlik, the site of ancient Troy, in 1874, alone showed the absence of any intended symbolism of Apollo or the sun in the marks whereby they were ornamented. It was, however, to be noticed that some of the prehistoric spindle whorls, or sphondyli, of Hissarlik, bore the well-known Aryan symbol, designated the Swastika. The figure which Mr. Beal exhibited was unlike the images of Buddha found in Ceylon. Amongst other peculiarities it was not in accordance with the conventional method of representation of the feet and of the hands, the thumb and all four fingers being usually made perfectly straight, and of the same uniform length.

Dr. Phené remarked that Mr. Wheeler wrote from India to the effect that the Prince of Wales's feathers were an Oriental figure three months ago; but six months ago, when he (Dr. Phené) had the honour to represent the *Daily News* as correspondent in the East, he first stated that Mr. Simpson had found this emblem in the temple of the Black Virgin at Ancona, and since then he had discovered it precisely in the arms of one of the noble families at Genoa, and likewise on the head-plate of an old Turkish gun, both of them of Oriental origin. As to the three lines or rays indicating the sun, that was stated by the Welsh and others, but he had lately found a most remarkable evidence of one line in a perfectly natural obelisk which crowns the summit of the Isle of Delos, sacred to Apollo and his mythical birthplace.

Mr. Spence Bate, F.R.S., made some observations on some pre-historic remains near the Plym, to which he had previously conducted some of the members on an excursion. The remains were, he said, unique in their character. He exhibited a diagram of those remains lying within two branches of the Plym, bounded on the upper side by Aylesbury and Higher and Lower Hartor, which were, he said, typical of all the other remains on Dartmoor. They consisted of lines of stone, about a pace apart and of different lengths, terminating with a stone circle at one end and with a "kistvaen" at the other. The kistvaen was a stone box, 2 ft. broad

and 4 ft. long, and about 2 ft. 4 in. deep. In the one investigated the cap-stone was still there, and in a most perfect condition. Near by was a cairn or stone heap, not a barrow, which was distinguished from a cairn by being an earth heap. He had opened one or two of these cairns on Hamel Down some time ago. He came upon a narrow heap of stones in the centre of it, but could find nothing in that; but close by he found the remains of some burnt human bones, a single stone, and near them a single flint implement,—a very fine flake which might be imagined as making a useful flint hatchet. A second barrow near by differed very little from the first. There were, however, a number of stones lying flat, and although it at first seemed likely that they were the remains of a kist vaen, it was not found possible to form them into such a shape. Beneath them he (Mr. Spence Bate) turned up with his own hand a little ornamental article composed of amber inlaid with gold. It was a long while before he could conjecture what it could possibly be. Its margin was broken, and it had little gold rivets put around the sides. But close by he found a little bronze blade of a dagger, and he ultimately conceived that the two articles were originally connected,—that one was, in fact, the blade and the other the handle of a complete dagger. They were evidently not of British type. Mr. Franks had confirmed him in the idea that they were of the neolithic period, just as flint was passing into bronze, and were probably Scandinavian in their character. On the banks of these little rivers they found the remains of tin-streaming works to an enormous amount. He did not say they all belonged to pre-historic times. In the days of Elizabeth, when Sir Walter Raleigh was Lord Warden of the Stannaries, he held his court in this district; but it would be noticed that the names of places on Dartmoor were somewhat peculiar, and his theory was, that the names were of Scandinavian origin, and were bestowed upon the places by Scandinavians who came into Devonshire for tin. As an instance of this he gave Merrivale Bridge, which was also called Pague Market. If, Mr. Bate argued, Marazion meant "Thursday's market," why might not Merrivale be a corruption of "Marribal," and mean "tin market"? His theory was, that the Scandinavians established markets at different parts of the moor, and thus gave rise to some very extraordinary places being called market, such as Pague Market. Returning to the cairns and the paralelilta, Mr. Bate stated that Mr. Fergusson's theory was that they occupied the positions of two opposing armies. He (Mr. Bate) thought there might have been battles between the Scandinavians and the Devonshire tinners of those days. As they found several East Tors and no West Tors, he suggested that they probably marked the positions of the "Eastmen"—in this case Scandinavians. With respect to the paralelilta, his theory was, that the greatest man who fell in the battle was interred in the paralelilta, and the general mass in the neighbouring cairn.

Colonel Lane Fox suggested the obtaining of a large map of Dartmoor, and of getting permission to explore some of the tumuli.

Mr. R. N. Worth said he would not be much surprised if the stone circles turned out to be the stone huts of the tinners. Some of the dwellings of Cornish miners and clay-workers he had seen built on much the same lines. It might be that that style of buildings had descended from the earliest times.

Mr. F. J. Bramwell, F.R.S., read a paper, "On a New Mode of Circulating Hot Water throughout very Large Buildings, and upon a New Mode of Softening Water, as carried out at the new Lunatic Asylum, (the third) for the county of Middlesex, situated on Banstead Downs, in Surrey." The author stated that this asylum * extended over many acres, comprising, as it did, numerous separate "blocks," for the reception of the patients, for the infirmaries, the administrative department, and other purposes. In order to attain economy and simplicity in management, it was desirable that the whole of this extensive acreage of buildings should be heated and supplied with hot water for baths and other purposes from one source of heat. It was well known that in a single house, or even in a single large building, the circulation of hot water could be automatically maintained by the mere difference in gravity between the hotter ascending column of water and the cooler and heavier descending column. The power thus obtained, however, was wholly inadequate to cope with the friction through the thousands of yards, miles indeed, of pipes at Banstead. To overcome the difficulty, and to enable the building to be warmed and supplied from a single source of heat, the author had devised the plan of placing in the engine-house a centrifugal pump, which forced the water along the outgoing main and exhausted it along the return main. These mains were conveyed side by side in trenches throughout the whole enormous establishment. They were not connected at their ends, but at each block of buildings a pipe, controlled by a valve, led the hot water into that block and supplied the whole of the heating coils therein, the outlet pipe from this system of coils being united to the return main. Thus the water circulated through each block with the velocity due to the difference of pressure between the outgoing and the return mains instead of circulating with the feeble velocity arising from a mere difference in temperature. It would be seen that there was practically no waste of fuel in the employment of steam to work the centrifugal engine, because the waste steam of the engine was used to aid in heating the water. The water was pure spring water obtained from a deep well in the chalk. It was of about 170 degrees of hardness, and was therefore a perfectly fit water for dietetic purposes in its natural condition. But on being boiled it deposited the carbonate of lime in the boilers and pipes through which it was conveyed, and thus the author of the paper was led to urge upon the magistrates the necessity, if they wished to preserve their boilers and heating apparatus from being coated with carbonate of lime, of softening the water by Dr. Clarke's process. The hardness of chalk waters depends principally upon their containing a certain amount of bicarbonate of lime. In solution lime is soluble in water readily. Bicarbonate of lime is soluble in water readily, but carbonate of lime is insoluble. If, therefore, the bicarbonate could be converted into a carbonate it would be deposited from the water, which would thus become soft. This conversion of the bicarbonate into a carbonate is effected in Clarke's process by mixing with the natural water containing the bicarbonate a small portion,—one-tenth of an eighth,—of water in which lime has been dissolved. On these waters being united, they instantly become milky, and after being allowed to stand for some hours the water again becomes bright, the carbonate of lime having fallen to the bottom. This operation, however, requires very large depositing-tanks, and a considerable expense, therefore, in plant. Mr. Porter has recently invented an improvement on Clarke's process, which appears to promise excellent results, and has, after experiment, been adopted at Banstead. The principle and mode of treatment, as far as the chemistry is concerned, are precisely the same as Dr. Clarke's; but, instead of waiting the slow process of deposition, to separate the carbonate of lime from the water, the mixed water is passed through filter presses of a peculiar construction, wherein the very carbonate of lime itself is made the filtering medium for itself, and in this manner, within a quarter of an hour of the mixture having been made, perfectly pure and soft water issues forth. There are four presses at Banstead, and these are sufficient to filter an average hourly quantity of 6,000 gallons, giving in ten hours the daily supply to the establishment of 60,000 gallons of the purest and softest water. This water is pumped into a tank on a tower 80 ft. high. The tank contains 40,000 gallons. Six-inch pipes, so as to avoid friction, are laid all over the asylum, and internal and external hydrants are fitted thereto. Moreover, if a fire continued so long that the tank was exhausted, the engines which drew the water from the well and raised it into the tank, can be caused to act direct as fire-engines. The work has been carried out by the Messrs. Eastons & Anderson, and the author of the paper was the engineer to whom the Middlesex magistrates confided the design and superintendence of the work.

Captain Galton gave a description of the elevated railway in New York, which, he considered, solved the difficulty hitherto felt in providing the means of rapid transit through streets in which the traffic is large. The tracks on the elevated railway were entirely out of the way, and did not interfere with business. A car moving at full speed could be brought to a standstill within a distance barely exceeding its own length, by means of an atmospheric brake. The cost of construction was only about 55,000*l.* per mile.

* Of which a view and plans were given in the *Builder* for March 17 last, pp. 267, 269.

SUFFOLK INSTITUTE OF ARCHÆOLOGY.

THE members of this Institute recently had an excursion to Lavenham and Cookfield. At Lavenham Hall they were hospitably received by Mr. and Mrs. William Biddell, and afterwards adjourned to the grounds, in which may be seen the almost indestructible remains of the basement of the ancient mansion of the De Veres, who obtained a market for Lavenham as early as 1290. They were then taken to a field close by, in which Mr. Biddell discovered a few years ago some curious ovens, while sinking for stone. These ovens, two in number, are situate about 2 ft. below the surface of the ground, and are constructed of flat tiles. They are each about 2 ft. 8 in. in height, and 2 ft. 10 in. in width, with semicircular arches, and the depth from front to back is about 9 ft. It was at one time thought that these were Roman work, but Professor Babington (who was amongst the party) now expressed his opinion that the structures were comparatively modern, constructed for the purpose of baking pottery, possibly tobacco-pipes, albeit there were fragments of Roman pottery near by. The party then proceeded to Lavenham Church, where Mr. Dewing read a paper in which he gave an elaborate description of the architectural features of this well-known church, speaking in terms of admiration of the chapels which form eastward extensions of the aisles, and pointing out the beauties of the screen-work by which they are enclosed. He also remarked on the testimony borne to the history of the church by the heraldic bearings seen within and without the sacred edifice. Special attention was called to the tower, 141 ft. in height, which is one of the most magnificent campaniles in the kingdom.

The visitors were then conducted through the streets of Lavenham, observing by the way many interesting remnants of early domestic architecture. But the most interesting relic of old Lavenham is the Guildhall, now used as a granary. The company lingered for some time in and about this picturesque building, as to which the *Bury Post* expresses the hope that some means will be adopted for its preservation from further decay. The principal apartment is spacious and lofty, and might well serve some useful purpose more dignified than that to which it is now devoted.

After luncheon, the party proceeded on to Cookfield Church, where the Rev. Professor Babington, rector, read a paper, in the course of which he said that he believed the church contained nothing earlier than the fourteenth century, to which period belonged the Decorated windows of the north aisle, the nave, the tower, a small window on the north side of the chancel, all the beautiful niches outside the chancel, and the elaborate and varied work of the string-course of the same. To the fourteenth century must also be assigned a recess (apparently an aumbry) at the north-east corner of the wall near the pulpit, brought to light during the recent restorations; but it was conjectured by Dr. Bennet that this aumbry did not originally form part of the church, but was brought from some secular building. To the latter part of the same century belonged the beautiful Decorated tomb in the north wall of the chancel, which a few years ago was much mutilated and covered with whitewash, but had now been restored under the superintendence of Mr. Fawcett. The square embattled tower of flints, with buttresses reaching almost to the top, contained five bells, one of which was broken: the buttresses inside the church supporting the tower were unusual, but in this and other features the church was so similar to that at Hitcham as to lead one to suspect that both were the work of the same builders, or erected under a common superintendence. The remaining portions of the church were, he believed, mostly of the fifteenth century, the porch and the south side being Early Perpendicular, whilst the side windows of the chancel were later, perhaps of the sixteenth century. It was observed by Mr. Freeman last year, when the Archæological Institute visited Sudbury, that in the generality of East Anglian churches there were two clearstory windows to each bay, but that Sudbury furnished an exception: another exception was to be found in this church. Some of the windows now Perpendicular were not always so; those in the chancel had been altered from the Decorated style, and the outline of the earlier windows might be clearly traced on the south side. The east window had, no doubt, been similarly treated, for the mouldings which now inclose it do not well fit it, and the present

window has been lately executed by Mr. Fawcett in the Decorated style, in place of an eighteenth century window with wooden framework, which had happily fallen into decay. The margins of painted glass in two out of the three large side windows of the chancel had been made up of glass which was till last year in all the three, supplemented by other pieces of ancient and modern glass; the ancient glass was presumed to be of the age of Henry VII. or thereabouts. The stalls, which are of fine work, apparently about the end of the fourteenth century, were till lately dispersed piecemeal about the church: they have now been arranged and completed by Mr. Fawcett. The under-sides of the miserere seats had been intentionally hacked and mutilated, and it was rather to be suspected that this was the handiwork of William Dowsing and his myrmidons, who during the Puritan domination of 1643-4 honoured the churches of these parts with their "axes and hammers." The communion-table and the pulpit were both of Jacobean work, but the base of the latter was much earlier. The font, a few years ago, was in a deplorable condition, and surmounted by an ugly Jacobean cover; it was only found possible to preserve the octangular base, but this guarantees that the new font is of the same general form as the original, of the fourteenth or fifteenth century. It is now adorned with cocks, in reference to the original name of the parish. These cocks might possibly have been originally connected with St. Peter, to whom the church was dedicated, and a text of that Apostle now runs around the font, in labels about the cocks placed on four of its faces. The pavement of the church, now laid with tiles, was formerly of brick, and was till lately interspersed (as the chancel now is) with flat sepulchral stones, which, with the ancient stone altar, have been removed to the floor of the tower, where they are secure from injury. The only sepulchral monuments remaining in the church which are deserving of special mention are those of the Harveys, who in the seventeenth century obtained Pepper's Hall from the Spring family. The roof of the church, with its king-posts, was once more ornamental than it is now, the colouring having been obliterated when some repairs were executed, but happily Mr. D. Wyatt had made a sketch of the original coloured ornaments. It only remained to mention the porch, originally very fine work of the early part of the fifteenth century, ornamented with panels of flint, and having shields for arms, but now in a deplorable state.

At the conclusion of the paper the excursionists were entertained at the rectory, and spent some time in examining the objects of art and antiquity which the rev. professor has there accumulated. Thus a very pleasant day's outing was brought to a close.

ANTIQUITIES IN EAST CHESHIRE.

ON the 31st ult. several members of the East Cheshire Rosicrucian Society accompanied Mr. J. D. Sainter, F.G.S., of Macclesfield, to the scene of some of his antiquarian researches at Clulow Cross, near Wincle. The party went afterwards to inspect that curious natural phenomenon, Ludchurch; and there were some other interesting objects to be seen in that district, which, for want of time, had to be passed over, and the same circumstance prevented Mr. Sainter from reading the two following papers:—

At Clulow Cross, near Wincle,—from clu, clud, or cloud (Anglo-Saxon), a rocky district; low (Anglo-Saxon), a rounded hill or barrow; and Wincle from winch (Scandinavian), an angular piece of ground,—a short time ago, in a field close to the Cross, an ancient burial was investigated by myself and others. The interment proved to be that of a child or young person, and it was similar to that which had been found near Langley. The urn, which was also of Celtic type, had been inverted, and among the burnt bones there was found a calcined flint knife and a flint arrow-head. The circumstances connected with this burial were rather peculiar. It lay about 3 ft. below the surface, and was surrounded by a stone circle 20 ft. in diameter, with apparently a headstone, more or less mutilated, 4 ft. in height, and the same in breadth, placed, not in the centre of the circle, but between 2 ft. and 3 ft. on one side of it, northwards. Directly opposite the headstone, the circle was entered northward by a short avenue of stones; a line of stones also ran up to the circle in an oblique curve from each corner stone at the entrance to the avenue, leaving a semi-triangular space on both sides of sufficient dimensions to accommodate four or five persons standing upright in each. For what purpose the latter had been intended it is difficult to say, unless as a fanciful addition to the avenue, or for a religious purpose; at all events, upon a trial being made with the spade no burial was found in either of them. These remains, with the upright stone, may have been enclosed in a tumulus 10 ft. or 12 ft. in height, with the circle of stones placed round its base; and the small avenue of stones leading up to the circle might have been for the purpose of pointing out in what part of the mound the urn had been deposited, as it was close to the headstone, with a southern aspect; or this stone may be the sole relic of a free-standing dolmen, or cromlech, i.e., it never had a covering of earth or stones. Other views of the matter may be suggested; this upright stone may be the portion of a menhir, with its upper part broken off, or, upon a microlithic scale, it may be the component part of a small kistvaen, or stone chest, which had been enclosed in a tumulus of earth, or a cairn, with the stone circle, &c., placed round its base. This burial will probably date from soon after the Romano-British period, and it exemplifies what may be named as a transitional example. The style of the urn in its general character is purely Celtic, and most likely refers to the time when a few of that race still lingered on those lonely and barren hills; and in burying this child, by way of external adornment, they adopted the Saxon custom of forming a circle of stones, &c., around its solitary grave.

In the adjoining field southwards there are to be seen the remains of some small stone circles and square inclosures, 6 ft. in diameter, which, when dug into, the surface soil was black for 18 in. in depth, succeeded by red soil containing a few rough pieces of gritstone; and, at a short distance north-east, in a hollow, there is traceable a stone circle, 30 ft. in diameter. Likewise, in a plantation across the lane opposite, there is observable that well-known object, Clulow Cross. This wayside cross, once so common, is placed upon the summit of an artificial mound of earth abstracted from the adjacent beds of the Drift; and to the north-west, it rests on the edge of an escarpment of the fifth bed of the millstone grit. This mound, or tumulus, is 250 ft. in diameter, 25 ft. in height, and probably, whenever it comes to be investigated, it may prove to have been erected in the early Saxon period of our history; or, what is not an unusual occurrence in barrows, that interments have been made in the same mound at different periods, and by different races. Thus, the ancient British raised mounds over the remains of their own people, and their subjugators, the Roman and the Saxon, successively, or as occasion required, took possession of them, and therein laid their own dead, sometimes with an additional covering of earth. "When groups of circles are found they mark battlefields, and some stone circles have been erected since the Christian era. A circle-building race came from the western shores of the Baltic, touching first at the Orkneys; and, in like manner, we seem to have had a dolmen-building race, who, from the south, first settled in Cornwall, and then spread northwards." The circle, 30 ft. in diameter, named above, may be the sole representative of a chieftain's burial, who may have been honoured by either a tumulus of earth or a cairn, with a dolmen or kistvaen in the centre of it. The small stone circles and square enclosures may mark the graves by inhumation of friends or comrades, "who fiercely fighting fell"; or they may be simply the foundations of stone huts used by sentries when upon guard. The above circumstances would suggest that the neighbourhood of Clulow Cross has been of some note or importance in a military point of view in Celtic, Romano-British, and Anglo-Saxon times, since from its elevated and commanding position it embraces a comprehensive range of other eminences from which signals could be exchanged during warlike times; and likewise to the north-west there is a wide and expansive view of the low-lying districts of the county; and, moreover, the above site is naturally well adapted for defence, as, facing eastward, it was formerly unapproachable, on account of an extensive morass; and, excepting towards the north, the summit of the hill would be gained with difficulty, owing to the steep ascents. Near the Castle Cliff Rocks in the Back Forest, about one mile and a quarter north-east from Swythamley Hall, there is a very curious chasm, known by the name of Ludchurch. Probably the word "lud" may be derived from "lund" (Scandinavian), a wood, grove, or forest; or otherwise from "lud" (Scandinavian), a place of retreat or refuge for the people. A local tradition is ascribed to this spot respecting the use of this chasm as a church in the time of the Lollards. Towards the southern extremity of the Roaches there is a secluded locality named Nabchurch, which very possibly admits of a similar interpretation from "nas" (Scandinavian), a projecting portion of land; or "nab" (Anglo-Saxon), an elevated point of land. Geologically speaking, Ludchurch is a rent running through the third bed of millstone grit, along the line of strike for about 100 yards, from 30 ft. to 40 ft. in depth, and with a breadth of from 6 ft. to 10 ft. The walls are vertical and overhanging, and it gives the idea that the front of the hill has parted bodily from the main mass, leaving the fissure along the line of fracture.

ESSEX ARCHÆOLOGICAL SOCIETY.

THE annual meeting and excursion of this society was held on the 30th ult., the town of Witham being the centre of operations. Lieut.-Col. Lucas, the honorary secretary, read the annual report and statement of accounts. The council express their satisfaction that the average number of 200 members had been maintained. The report stated that the museum at Colchester was rapidly increasing, and was in a prosperous condition. The financial statement showed that the society had a balance in hand of 170l. 6s. 11d. The report and balance-sheet were adopted, and it was announced that the place of meeting next year would be Clare, in Suffolk, successful overtures having been made to the Suffolk Archæological Society for a combined meeting.

Mr. Hamilton, of Kelvedon, read a paper on the remains of ancient glass in Rivenhall and the other churches the members were about to visit. In commencing, he said:—"We are fortunate to-day in being able to inspect the very earliest specimens of old glass with which I am acquainted, although I have lately seen some remarkable fragments that belonged to the original Norman church at York Minster, and of course do not forget the Canterbury windows. I believe that the glass at Rivenhall is as old as the oldest of those ancient windows." In describing the colouring of the four centre panels of a window at Rivenhall Church, he said, "The ground of all the four panels is of a lovely sapphire blue. They are all surrounded with borders formed of streaky ruby, edged on both sides with a beaded rim of white glass. The colours used are very gemlike and beautiful, and the glass is very little disintegrated by decay. The blue glass is particularly well preserved, and still fairly transparent. Distant objects can be tolerably well seen through it."

After luncheon, the party proceeded to visit the churches and other buildings in Witham and neighbourhood. Of the mother church of St. Nicholas (the first building visited), the "People's History of Essex" states that the older portions of its walls are of Roman bricks and flint, and the doorway which now forms the chief entrance of the church is believed to have been erected at the time King Stephen and Queen Maud gave the edifice to the canons of St. Martin's-le-Grand. The most ancient monuments in the church are of the sixteenth century.

Faulkbourn, the parish next visited, derives its name from two Saxon words, signifying the Folks' Brook or Well. There is a widely-known spring in the parish called "St. German's Well," which, in ancient times, observes Morant, "was in mighty reputation, and much frequented by superstitious people." The historian is of opinion that there was an ancient Roman villa here. The church contains monuments to the Fortescue family, date 1576 and 1598.

The church of White Notley, the edifice next visited and examined, is thought to have been founded by Geoffrey de Mandeville, Earl of Essex, and Roger Bigod, Earl of Norfolk. It is built in the Norman style of architecture, and the chancel contains a decorated piscina of the style of Edward III.

Regarding the church of Cressing, which the party next inspected, and which is dedicated to All Saints, Morant says that it was first founded, as a chapel to Witham parish, by Elphelin att Gore and Levelote, or Lenelek, his wife. They gave twenty acres of land for its maintenance and the providing of it with all necessaries. The chief preceptory of the Knights Templars was established at Cressing, and for more than a

entury and a half men eminent in that order uled in state at the manor-house, which was called Cressing Temple.

The party then moved on to Bradwell to visit the church and hall. The church, dedicated to the Holy Trinity, is a small building, consisting of a nave and chancel, both of one pace, and tiled. There is a tower at the west end, surmounted by a shingled spire.

Rivenhall was the next parish to which attention was directed. The church, to quote Morant, is of one pace with the chancel, only the latter is half a yard narrower on each side, and about as much lower than the church. Both are tiled. At the west end there is a brick tower with battlements, in the middle of which rises a wooden steeple.

The last place at which a halt was made was the parish of Little Braxted, a parish the history of which Morant traces from the time of Edward the Confessor.

VALLE CRUCIS ABBEY.*

THE charming valley, surrounded with pleasant hills, which shut it out of the world beyond, the hardly audible ripple of the flowing streamlet, and the absence of any prospect save of the enclosing hills, alike tell us that this is the site of a monastery for monks of the Cistercian Order. They would alone be sufficient to record it were the voice of history silent and the architectural arrangements untraceable. The foundation of Valle Crucis Abbey, and its date, have been subjects of much doubt. Sir W. Dugdale, on the authority of Leland, rightly ascribed the foundation to Madoc ap Griffith Maylor, Prince of Powys, and assumed that this was about A.D. 1200. We are indebted to an associate, Mr. Morris C. Jones, the active hon. sec. of the Powys land Club, for a discovery of no small importance with reference to the history of the abbey. By a process of close reasoning, he has demonstrated that one of the charters supposed by Dugdale to have referred to another building, in reality is the foundation charter of this abbey, granted by Madoc. We learn by this discovery that Valle Crucis was an offshoot from the less celebrated but parent abbey of Stada Marcella, and that a few monks of that house were the first occupants here. Philip is spoken of as being then the prior, showing that before the granting of the charter much preliminary work had been done. We may accordingly, with confidence, consider him as the first prior, and place him at the commencement of the scanty list of those whose names have been recorded. The foundation charter is undated, and we are therefore left no nearer to the verification of Dugdale's guess, while Mr. Jones is led in support of his argument to devote much of his reasoning to prove that this spot was known then and later by the odd sounding title of Llan Egwistle. It may be worth while here to say that one of the latest seals of the abbey extant, in the Herald's Office of a date early in the sixteenth century, has this name on its legend, thus indicating that even at this late date Valle Crucis was known by its original name. The buildings of the abbey afford a perfect model, so far as they remain, of the arrangements of a Cistercian house, and we will survey these in order, but it might be as well to announce that since no correct plan of these remains has yet been published, the council of this association has determined to have engraved one which was carefully prepared by the late Mr. S. Buckler, and which exists among many other papers of considerable interest which he bequeathed to the British Museum. The church is of the usual cruciform type, an aisleless presbytery, transepts with two chapels forming an eastern aisle to each. There has been a low square tower over the crossing, and a nave of six bays, with two side aisles. The extreme length is 165 ft.; length of transept from north to south, 98 ft.; width of nave and aisles, 67 ft. 6 in.; width of chancel, 30 ft.; and of the transept, 30 ft. It will be seen that the east and west gables are all but perfect, and that the north and part of the south walls of the chancel still remain. Also those of the south transept and of the north aisle of the nave. The south wall of the nave is almost perfect, but is hidden by the luxuriant ivy, which here and elsewhere adds so greatly to the beauty of the building in its state of ruin. The bases of the nave piers are traceable,—thanks to the careful clearance by Viscount Dungannon and Mr. Wynne in 1854. The east end and the transepts are designed in a severe style of the First Pointed architecture, and the peculiar plaster buttresses of the exterior are more curious than beautiful; the treatment certainly indicates some local influence, but whether we should consider it as derivable from Dublin, as a late writer suggests, or as evidence of a Welsh school of architecture, is open to question. The Principality is full of evidence of peculiar treatment of architectural detail, both of early and of late work, which seems to afford evidence that the old Welsh builders were not content to copy the style prevalent in England, but impressed upon it their own peculiar treatment. The lofty eastern lancets spring from a height, which must always have been, for the size of the church, remarkably little above the pavement, and there is just a trace of a moulded arched label over the two upper lancets. This arch probably indicated the line of the presbytery, whether of arched boarding or of vaulting. The corbel table around the presbytery and transept walls is bold and peculiar, and is of two patterns. The shafts internally afford some evidence probably of an intention of vaulting the ceiling, which was never carried out, and the sloping line of stone visible inside and out in the walls seems to be indicative that the west end of the chancel was once covered by a hipped roof. This could only be prior to the erection of the central tower. The other sloping line crossing is that of the roof of the sacristan's passage to the loop. The slit on the south side is from a curious little room and passage at the back of the monks' dormitory. A great many guesses have been made to determine the use of this passage and the loophole; probably, from the abbot's oriel in St. Bartholomew's, London, it has been called the abbot's closet. It is, however, that for the sacristan, from which he would watch the perpetual lamp of the sanctuary at night. The high altar has not stood touching the east wall, but away from it, as at Fountain's Abbey and many other places. The aumbry in the south wall has a semi-circular arch, and has been double. The bases of the four altars of the transept chapels are very apparent, and they have been covered with arcading. They are attached, as is usual in these positions, to the east walls. The intermediate arches dividing the chapels have probably been filled in only to a certain height, to allow of the picturesque effect being preserved. Each of these altars is furnished with a piscina. The northern altar of the northern transept has a detached pillar piscina. The others have lockers in the wall in several instances, and the elegant and early carving of the brackets of the piscina will be observed with interest. There are two floor drains to the north-east chapel. The remaining arches of the transepts are designed in a very severe style, and the capitals are a tradition of some building of earlier date. The borders of the arches are simple rectangles without even a chamfer, but the effect is excellent. We may in the sheltered stonework of these chapels observe that the whole surface of the wrought stone has been covered with a film of plastering upon which coloured decorations are still traceable here and there. This use of colour was forbidden in Cistercian houses, and I am for one glad to think that in some cases their rules were sometimes more honoured in their breach than in their observance. The same is observable at Old Cleeve Abbey. These traces of colour have not, I believe, hitherto been noticed, and another feature of interest may have attention directed to it. Many of the stones have mason's marks. I collected readily a dozen or more different examples, besides others slightly different or reversed, and they deserve comparison with those which have been noted elsewhere. It has sometimes been stated that all the buildings are of the same date, but a small amount of inspection will assure us that the east end is the oldest, say of a date within the first twenty years following that of the foundation; the transepts a little later; and the west front, as represented by its style, about 1260. The ground floor of the conventual buildings is of the same date as the transepts, the style possibly older, but the dormitory floor above is at least 150 years later than the foundation, since we cannot assign an earlier date than the middle of the fourteenth century. The square-headed doorways have the same flowing mouldings as the windows; at this time the arches and flowing tracery of the chapter-house were added into the older openings. The western lancet of the south transept is filled in with tracery of the fifteenth-century date into the older opening. There are traces of the use of stonework of earlier date than in these buildings. The fireplace in the muniment-room has an inscription which has often been given, which shows that it was once part of a tombstone. The sill of the little unglazed niche looking from the room at the end of the dormitory into it has been part of an incised slab. The present rough roof of the dormitory is modern, but the water tables in the south transept gable show that it is of the same pitch as the original one. The door in the south side of the dormitory is an unusual feature. It was probably for hoisting up the trusses of straw for the monks' beds, and for the passage of articles which could not be brought up the narrow day stairs. Several rectangular apartments are indicated, and it is probable that the refectory extended north and south. Just a trace of a wall at right angles to the day-room going west may be discovered among the farm appliances at this corner, and also an angle buttress. All the walls are constructed of dark blue slaty stone, with dressings of reddish freestone, all of great durability and excellent workmanship. The main windows of the church are not rebated for glass, and it is probable that they were filled in with stained glass secured to the iron stanchion bars, which have been numerous, and wedged into the stonework. Since these would not be furnished with open casements, the ventilation of the building has been assisted by several small square apertures, the original putlog holes of the builders, but which are formed quite through the walls. The income of Valle Crucis at the Dissolution was 188*l.* clear, and 214*l.* 3*s.* 5*d.* gross, and the largest of any Cistercian house in Wales; that of the parent abbey of Ystral Marchel was only 64*l.* 14*s.* 2*d.* The surrender was in the twenty-sixth Henry VIII., and was thus among the lesser monasteries.

* From a paper by Mr. E. Loftus Brock, read at the Llangollen Congress, as elsewhere mentioned.

VISIT TO A BREWERY.

THE Civil and Mechanical Engineers' Society paid a visit to Messrs. Truman, Hanbury, Buxton, & Co.'s Brewery on Saturday, the 25th ult. (by the kind permission of the firm); one of their sessional visits to works, which is a most instructive and practical portion of the Society's programme. The Brewery, in Brick-lane, Spitalfields, was founded more than a century ago, and has now grown to such magnitude as to give employment to 500 men, and send out 600,000 barrels of beer per annum. This is done at the London brewery alone, the firm having another establishment at Burton-on-Trent. In a brief notice it is difficult to enumerate even the most interesting portions of the various departments; but we may specially mention that the steam-power for the brewery is supplied by fifteen boilers, and twenty engines, giving a total of 330 h.p. nominal. The well from which the principal portion of the water is derived for brewing purposes is 8 ft. diameter to a depth of 22 ft. There are 100 vats, the largest 25 ft. diameter by 22 ft. deep, the contents of the same being equal to 72,000 gallons. The whole working of the brewery, from pumping the water to filling the barrels with beer, was explained to the visitors; and, we may state, the great cleanliness which prevailed throughout the establishment elicited the praises of all present. The fitters and turners, smithy, pattern-makers, and coppersmiths' shops were shown to the party, as well as the stables, giving accommodation for 200 horses, each stall having the name of its occupant printed overhead.

The visitors met with the greatest kindness from Mr. R. Fairman, the resident engineer, who very lucidly explained the various processes carried on throughout the establishment.

ENGLISH BRONZE WORK.

MR. HATFIELD, of 21, Cumberland-street, has just now completed, for Baron Rothschild, four of the most elaborate bronze candelabra that have been produced of late days. These works are reproductions, made, at the cost of about 2,000*l.*, with the Queen's consent, of four Italian candelabra belonging to her Majesty, and now in Windsor Castle, and illustrate the four seasons by groups of figures in bronze, behind which rise the branches in ormolu for candles. The groups are very involved. As specimens, both of moulding and chasing, they entitle Mr. Hatfield to great praise. The same may be said of a large bronze fountain which he has just now finished from a design by Mr.

William Burges, for the Marquis of Bute, and which is going to Cardiff. Mr. Burges has shown his accustomed skill in the reproduction of mediæval forms, or, as we would rather say, of forms imbued with mediæval feeling. A bronze door for the Marquis of Bute, and one for the architect's own house, are in progress. In the latter, a relief of the Virgin and Child occupies the upper panel, and in that for the Marquis, a life-size beaver in an upright position is divided amongst the four lower panels.

PROTECTION OF ANCIENT BUILDINGS.

SIR,—The statement of objects put forth by the Society for the Protection of Ancient Buildings divides itself in substance into two heads. Under the first, the society concerns itself with the right mode of preserving ancient buildings for use. Under the second, with the right mode of dealing with those buildings when their continued social usefulness calls for alterations in the buildings, or for work more extensive than that required for mere preservation.

I do not propose to step down among the somewhat vehement combatants who have already discussed the subject under the first head, further than to remark that if this age be an age of copyism, any alterations made in the spirit of the copyist must, in destroying history, leave "history in the gap." The page written will, no doubt, be a page the copyist writes, but a page as indelible and as needful to the history of the race as any other page, however "living."

Turning now to the second division of the statement, I find that when, decay having been staved off by daily care, the building yet remains inconvenient for its present use, the society forbids us to follow the precedent set by our forefathers, forbids us to write our page in history [as best we can, and retain thereby, for continued social use, all that is possible of the walls and architecture of the past; on the contrary, it says, "Treat our ancient buildings as monuments of a bygone art, created by bygone manners, that modern art cannot meddle with without destroying," and this we are to do because the "living spirit" the building has inherited from our forefathers demands this treatment of us.

The point raised then is this. Do we most advance the progress of humanity when we follow the example of our forefathers and alter ancient buildings as we best can, and thus retain them for social use? or should we treat all they contain as so sacred that we must rather erect new buildings than touch anything of the old beyond that needful for repair?

Now, surely the spirit which pre-eminently creates the copyist is a spirit which yields to the seduction of pretty historical forms, instead of letting the use for which a building is designed grow out into its own forms. The life, indeed, in the ancient buildings, the want of which in the modern causes such anger in the society, is the recognition with which every crumbling stone is alive, that, whether it be a stone hidden in the walls, or an ornament on its face, it is there alike to subserve the structure of the building, which itself subserves a social use. When, then, the society bids us, "because we have no style of our own," to push the ancient buildings on to the by-ways of life, rather than touch one perishing stone that it contains, is not it exhibiting the worship of the dead form instead of the living spirit in the most flagrant of ways?

"I cannot produce forms as good as our forefathers," says the copyist; "therefore I will reproduce those forms."

"We cannot produce forms as living as our forefathers," says the society. "Therefore we will let all social use die out of their buildings rather than touch them."

This is to out-Herod Herod! In the name of hostility to copyism, the society manifests, in such injunctions, more of the spirit of the copyist than the copyist himself! Because we cannot alter the works of our forefathers in a living spirit, we are to preserve intact the walls and outlines they reared,—those walls and outlines which the very elements moulder irreparably away,—though by so doing the buildings are left unfit for any social use, while for a social use alone our fathers reared them!

The history of what we are to-day was already written in the character of our forefathers. The Protestantism of our day is an outbirth of the Romanism of the past. Our Anglican liturgy and all the thought founded on it, is a derivation from the piety of the Church of old; and when repeating Sunday by Sunday the glowing words the liturgy contains, are we, the thousand, to be driven away from the enclosing walls our forefathers erected, expelled from the sites on which they worshipped, because, in obeying the living spirit which animated them, we must destroy some of the history they wrote, and thus rob the one man of his reading?

We of this day may be poor copyists, but even so, we are our forefathers' children and our descendants' fathers, and must live and write our tale and die. So living, then, and reverencing as we live, we should surely reverence primarily the spirit in the work our forefathers have left, and the forms in which the spirit is embodied, in the second place. And as we love our forefathers and object to having the spirit of the copyist made more permanent than before, this very reverence bids us not to spare any work of theirs which, if preserved, would prevent the buildings which they have left from subserving a social use in our day as well as theirs. This love forbids us, I must think, to gather up, in a spirit more idolatrous of old forms than that of the copyist himself, forbids us in this spirit to gather up our old buildings into a sort of *hortus siccus* for botanical study,—to extract from them the social life they may be made to retain, in order to put their skeletons in our museums.

HORACE FIELD.

SOLICITORS' CHARGES.

SIR,—A practice is becoming prevalent in the above matter which requires public comment, not so much with a view to repression, which could scarcely be accomplished, as, that inexperienced persons may be warned, and thereby enabled to prevent or resist a system which amounts in the majority of instances to a serious taxation.

Some years ago, an Act of Parliament, it is believed, was passed, enabling solicitors to depart from the usual 3s. 4d. and 6s. 8d. in their bills of costs, and to adopt in lieu thereof, either the principle of a commission or an agreement with their clients for a specific sum, avoiding thereby the long bills always liable to be disputed, and ever causing much vexation of spirit. It, therefore, became desirable, if not necessary, that a scale of charges should be prepared, and recognised, to ensure uniformity. The Incorporated Law Society, or some such institution, drew up a scale, now generally adopted by the legal profession when charges are made on this principle.

Now, *cæteris paribus*, and both solicitor and client consenting thereto, to charge according to this scale would be a very satisfactory course of procedure, and a lawyer's bill, if not paid cheerfully, would at any rate be settled without demur. But, if I am correctly informed, the scale of charges is adopted frequently without any intimation to the client until the account is presented, when a verbal or written expression of astonishment is met with a suave statement, that the charges are in accordance with the scale of the Incorporated Law Society; expostulation appears useless, and the victim feels that he must patiently submit, and does so, as the lesser of two evils, unless the amount is so exorbitant that resistance is a necessity.

It would not be just towards a body of gentlemen, educated, and for the most part honourable men, to accuse them of wilfully keeping their clients in ignorance of their intention to vary their mode of charges, and it may also with fairness be assumed that the public are generally attentive to their own interests, and ought to make themselves acquainted with the practice of those whom they employ, as to their remuneration. Nevertheless, it frequently occurs that the evil is only discovered when too late to be remedied. Whether, therefore, the solicitor ought invariably to acquaint his client relative to any variation from the usual mode of charge, or whether the client should make the inquiry, is a piece of casuistry that may be left for consideration. I am only writing in the interests of those who, in consequence of an omission to have a clear understanding, attain their experience at the expense of their pocket. For the satisfaction of such it may be stated that no legal charge based on the scale of the Incorporated Law Society can be enforced unless there has been a verbal or written agreement that such scale shall be adopted.

Places where property is frequently being transferred, and the principle of building leases prevails, are greatly affected by this mode of charge. Where the fee simple of the land is purchased, and investigation of the title necessary, it may be the safer plan to come to terms with a solicitor as to costs; but where leaseholds are the rule, and those often direct from the landlord, and the title of the owners of the soil well known and unquestionable, then the work and labour done in a solicitor's office is really so trifling, and the course of procedure so unvarying, that a few hints to a clerk are all that is needful to carry out the transaction; any other, therefore, than a most moderate charge is unreasonable, and it is almost surprising that lithographed forms are not adopted, as a simple and economical course. The question of mortgages gives a colourable excuse to charges on this comparatively new scale; the procuration of the needful amount is supposed to be attended with difficulty and trouble, though this is in truth very rarely the case, and certainly for some years the rate of interest has been such that capitalists and others would only be thankful to obtain secure investments for their money. Where the property has changed hands frequently, a little more investigation may be needful; but even under such circumstances nothing will justify the charges which I have reason to believe are frequently made. It is to be hoped, therefore, that persons purchasing or otherwise dealing with property will energetically protest against a system for which, save in exceptional instances, and without an explicit understanding, there does not appear to be a shadow of an excuse. Public bodies, too, although spending other people's money, ought to be careful in such matters.

In conclusion, I would remark that, if I am rightly informed, lawyers' charges, surveyors' fees, and house-agents' commission, add a very considerable percentage to the expenses associated with the transfer of property.

FAIR PLAY.

CONCRETE BUILDING.

SOME time ago Mr. Edge, architect, of Birmingham, acquired some building sites at Richmond-hill, and found that before he could proceed with the plans which he had formed, a large quantity of gravel must be removed. The existence of this large quantity of gravel led to the inquiry whether or not it might be utilised, and Mr. Edge entered upon a number of experiments in the direction of its employment in the making of concrete. The gravel consists of pebbles, red sand, and a certain quantity of marl, and it was found that if a lime concrete was to be made, the two latter constituents must be got rid of. The pebbles were accordingly washed, mixed with ground lime which is unslaked, and then water added. The lime has an affinity for the silica of the stones, but not for the sand and clay, and when the mixture described is allowed to rest for a few hours, it sets into a mass much more solid than brickwork, and nearly as hard as stone.* Mr. Edge is now building a house containing three sitting-rooms and nine bedrooms, in which concrete plays a very important part. In order that the house may accord in style with those near it, it has a facing of red brick, but only to the thickness of 2½ in. Inside this is a wall of concrete, giving a total thickness of about 15 in. The object in the case of the present building, is not so much that of cheapness as of increased substantiality, it having been found that 9 in. brick walls, in the case of several neighbouring houses, have been insufficient to keep out the damp. There is, however, no necessity for any employment of brick at all, as is shown by the construction of several interior walls of only 4½ in. in thickness; and, as will be further demonstrated in buildings yet to be erected, even in the construction of the flues the concrete is amply sufficient. The apparatus for building the structure is of Mr. Edge's invention, and while being extremely simple, serves its purpose admirably. He commences on the ground by putting in position two parallel rows of uprights, secured by iron rods. These uprights support boards, the space between which constitutes the mould, to be filled with concrete. A height of about 2 *ft.* 6 in. is poured in at a time, and when this has set, the boards are removed and hung higher up the uprights, and the work is continued. The uprights are long enough for three removes, and on the third being completed

* We have always considered a certain proportion of sand necessary in the constitution of concrete. The lime used by Mr. Edge is, we understand, the ground Barrow blue lias, from the works of Messrs. John Ellis & Sons, Leicester.

they are raised, and are supported by rods through the work. The highest wall in the building is about 50 ft., and the concrete having been carried up to that height without the interposition of either brick or stone, stands as dry, hard, and solid as could possibly be desired. It is estimated that a cubic yard of the concrete work, where the gravel is on the ground, will cost 11s. 9d., the amount being made up partly as follows:—Washing gravel, 2s.; two bags of lime, 4s. 6d.; labour, 3s. 6d.; as contrasted with 25s. to 28s. a yard for brickwork.

HEAR THE OTHER SIDE.

Sir,—The remarks of your correspondent, "George Mitchell," in the *Builder* of August 25, upon "Peerage Property," are unjust to at least one nobleman alluded to,—the Duke of Devonshire,—to whom the building trade is much indebted; for the town of Eastbourne, already numbering, I believe, about 15,000 inhabitants, and rapidly extending, owes its existence entirely to his wise and liberal policy; and as the originator and generous promoter of the growth of this beautiful town,—which, in most respects, may be considered a model of what a watering-place should be,—the duke merits not only the gratitude of its inhabitants, but that of the whole country. Nor is Eastbourne by any means the only part of this duke's large possessions which benefits by his wealth. Several churches in a populous manufacturing district have been erected at his expense, and Cavendish College, Cambridge, now in course of erection for the benefit of young men who are unable to meet the expenses of a university education in existing colleges, is, if I mistake not, another monument of his liberality.

It may be true that noble lords do not all bear in mind that property has its duties as well as its rights, and sometimes pursue a selfish and obstructive policy in questions of public utility, but we may trust that the moral pressure of an increasingly powerful, because increasingly educated people, will be sufficient to prevent the great landowners sacrificing their country's interests to their own; and that thus the amicable relations which have hitherto subsisted between the aristocracy and the people of England may be rather strengthened than weakened. That England, on the whole, has great cause for thankfulness that it possesses a wealthy aristocracy, surely hardly any reasonable and cultivated man will deny. At any rate, it would be as well if Mr. Mitchell and others who share his views would take the trouble to ascertain a little more about the nobility, before they bring against them the charge of "lording it over God's heritage without any reference to the good of others."

In justice to the Duke of Devonshire I would ask you to insert this letter, which I have no object in writing beyond the desire that to all should be accorded Fair Play.

MEMBERSHIP IN "ARTISANS' INSTITUTES."

On the 28th ult. a meeting of the Council of the Builders' Labourers of London was held in Great Guildford-street, Southwark, for the purpose of hearing and considering the report of their general secretary relative to the conference of the delegates of the London trades, who met Mr. Morley, M.P., on his invitation, to confer respecting the extension of artisans' institutes for the technical education of the working classes. Mr. P. Kenny, the secretary, stated that he attended the conference of the London trades, and it was to be regretted that there were two delegates present from the painters and cigar-makers who objected to the admission of labourers into artisans' institutes, although they had been founded by philanthropists like Mr. Morley, the Earl of Shaftesbury and others, who took an interest in the elevation of every section of the working classes alike. Hundreds of men who were once labourers, and that only a few years ago, had now risen to be skilled workmen, some of whom were receiving a guinea a day. If then such a suggestion as to the closing of the doors of institutes against labourers were adopted, it was to be hoped in common fairness that no skilled operatives would be admitted unless they could produce their indentures, for if that test were applied, it was evident that very few of them would gain admission. A resolution was adopted, thanking Mr. Morley for his aid to artisans' institutes, and asking him "not to defray the expenses of artisans' institutes if the artisans refuse admission to the labourers." In reference to this matter, Mr. Solly, of the Artisans' Institute, in St. Martin's-lane, writes to say that any workman, even if unskilled, is admitted to the classes of that institute, and that "amateurs" also are admitted if they have "a recognised means of livelihood." Mr. Rossiter, of the Working Men's College, Blackfriars-road, writes to a similar effect. One passage of his letter is so curious that we quote it:—

"Here any person whatever is admitted to any class without any distinction of age, sex, occupation, or of any kind whatever, it being only required that each member of a class shall behave orderly, and not be in any way the cause of interference with the work of the class. Supposing a young lady of refined manners expressed a desire to attend the bricklayers' class, I am quite sure I should make no objection, and I am certain the other members of the class would receive her with respect and pay every attention to her."

MUSICAL AND ARCHITECTURAL PROPORTIONS.

Sir,—Will the following formula be of any assistance in settling the question of musical and architectural proportions?—

G♯	=	81^3		
C♯	=	54	×	81^2
F♯	=	54^2	×	81
B	=	54^3		
E	=	36	×	54^2
A	=	36^2	×	54
D	=	36^3		
G	=	24	×	36^2
C	=	24^2	×	36
F	=	24^3		
B♭	=	16	×	24^2
E♭	=	16^2	×	24
A♭	=	16^3		

A key-note is to its fifth as 2 is to 3.

T. G. Atkins.

ROB NOT PETER TO PAY PAUL.

The advocates of Mr. Bramwell's scheme for supplying London with water pumped up from deep wells in the chalk districts north and south of the metropolis seem to have taken little notice of one objection, which to me appears, I own, quite insuperable. I mean the crying injustice and hardship which would be inflicted on extensive districts by depriving them of their present supplies of water.

The inevitable consequence of establishing gigantic pumping engines would be that all the shallower wells in the neighbourhood would be laid dry, and also that, the sources of the natural springs being thus intercepted, those springs would cease to flow. It is impossible to suppose that Parliament can ever be induced to sanction a scheme the flagrant injustice of which is so undeniable. P. P. C.

THE GOOD OLD TIMES.

Sir,—I have this day fallen in with a passage in Horace Walpole's letters which you may perhaps think worth noticing. The physicians of the present day would not, I think, have been puzzled by the case. W.

"Jany. 20, 1760.

"There is a horrid scene of distress in the family of Cavendish; the Duke's sister, Lady Besborough, died this morning of the same fever and sore throat of which she lost four children four years ago. It looks as if it was fixed in the walls of the house; it broke out again among their servants, and carried off two a year and half after the children. About ten days ago, Lord Besborough was seized with it, and escaped with difficulty; then the eldest daughter had it, though slightly; my lady attending them is dead of it in three days. It is the same sore throat which carried off Mr. Pelham's two only sons, two daughters, and a daughter of the Duke of Rutland, at once. The physicians, I think, do not know what to make of it."

Social Science in America.—The next meeting of the American Social Science Association will take place at Saratoga, beginning October 4, and lasting through the week. At a special meeting on Friday, October 7, reports from the Social Economy Department on "Economy in Building," and on "Home Comforts and Amusement at Small Cost," will be read and discussed. During the congress, papers on the "Ventilation and Warming of Schools," by D. F. Lincoln and William Watson, of Boston, and by Frederic Winsor, of Winchester, Mass., will also be read.

SKETCH FOR A TECHNOLOGICAL COLLEGE.

Sir,—In the recent proposal, and the discussions which have ensued, concerning the establishment of a Technological College, it appears to have been entirely forgotten that in the year 1851 I published a pamphlet projecting a grand central Technological College. This pamphlet contained lithographed plans of such a college, and of a branch school. The plans were only meant to indicate the theoretical arrangement of such institutions; they were not working drawings. Copies of this pamphlet were forwarded to the members of that Royal Commission which was appointed to deal with the surplus fund of the first great International Exhibition, accompanied with the proposal that those funds should be devoted to the founding of such an institution on the then unappropriated grounds at South Kensington. It provided for a gymnasium, a library, and a museum. The class-rooms for special subjects were placed in immediate connexion with those sections of the library, and of the museum, which related to such special subjects. The following were the technological sections proposed:—

Mathematics.—Pure and applied.

Æsthetics, Plastic Arts.—Painting, sculpture, and architecture.

Æsthetics, Music.—Acoustics, instrumental and vocal music.

Æsthetics, Literature.—Poetry, the drama, &c.

Ethics.—Jurisprudence, social science, political economy.

Statistical Science.—Social statistics, political statistics, the statistics of trade.

Language.—Comparative grammar, ancient languages, modern languages, history, and literature.

Naval Architecture.—Motion of waves, principles of naval construction, ship carpentry, &c.

Civil Engineering.—Strength of materials, principles o construction, carpentry, and masonry.

Astronomy, Geometrical.—Navigation, geography, land surveying.

Astronomy, Dynamical.—The imponderables, pneumatics and hydrostatics, mechanics.

Chemistry, Inorganic.—Experimental chemistry, geology, mineralogy.

Chemistry, Organic.—Vegetable, animal, the chemistry of the arts, and of agriculture.

Physiology, Animal.—Comparative anatomy, human anatomy, medicine.

Physiology, Vegetable.—Botany, the distribution of plants, vegetable products used in the arts.

This programme may even now be useful. The pamphlet was acknowledged and noticed at the time of publication. *Sic transit gloria mundi.* W. Cave Thomas.

MASTER AND APPRENTICE.

IMPORTANT DECISION UNDER "THE EMPLOYERS AND WORKMEN ACT, 1875."

A case of considerable importance came before the Aldershott bench of magistrates on the 30th ult.

It appeared that an apprentice by the name of Frederick William Fairchild, with the consent of his father, was apprenticed to Messrs. Martin, Wells, & Co., of Aldershott, government contractors, for a term of six years, as a carpenter and joiner.

The apprentice came of age on the 8th of June last, when he left his master's service, refusing to complete his term of apprenticeship. Up to that time he had served close upon five years, having one more year to serve. Now, the question was, whether the apprentice could be compelled to complete his term of service after he had attained twenty-one years of age.

Mr. Martin, solicitor, of Aldershott, who appeared for the plaintiffs, argued that although by the Common Law rule a contract made during infancy was not binding after the infant attained twenty-one, unless it be for necessaries, or was ratified, yet the Employers and Workmen Act, 1875, altered the law as it formerly stood, and that under the 10th section of that Act it did not make any difference whether the apprentice was under or above the age of twenty-one, so that there was a subsisting contract of service entered into either before or after the passing of the Act. And further, under the 7th section,—"The Court, in addition to, or in substitution, for any order which it is authorised to make against the apprentice, might order any person liable under the instrument of apprenticeship to pay damages for any breach of the contract of apprenticeship." Accordingly, a claim was made against the father for damages.

The apprentice handed in a certificate of his birth, but there was practically no defence beyond the point of law raised, as the facts were beyond dispute.

The magistrates retired for consultation, and after an absence of about twenty minutes, the Chairman said that as it was the first case of the kind that had been brought before them under the Act, they had given it their most careful consideration. They were unanimously agreed that the contract was binding, and it had been broken by the defendants. They did not think the case was brought so much for damages, as for making an example. An apprentice could not leave because he had become of age. Doubtless, defendants thought that under the Common Law they could act as they had done. The junior defendant was ordered to complete his term of apprenticeship, and to pay 5s. 6d. costs; and the father to pay 5l. damages, and 5s. 6d. costs.

NEW RESIDENTIAL CHAMBERS, VICTORIA STREET.

BUILDINGS in flats, at the West End, for the wealthy and well-to-do classes, are now in course of erection, in several localities, on an extensive and magnificent scale. A short time since we gave a descriptive notice of the enormous and lofty block at Queen Anne's Gate, belonging to Mr. Hankey, and we may now state that another block of buildings, of a similar character, is in progress in Victoria-street, on a spacious site a little west of the Westminster Palace Hotel. These buildings, intended as residences for the same class of persons as those occupying Queen Anne's mansions, are nevertheless much more elaborate and striking in their architectural features than the last-named, whilst in their exceptional loftiness they closely resemble them. They stand upon a site at the corner of Victoria-street and Chapel-street, covering a ground area of about 26,000 superficial feet, and which is angular in form. The Victoria-street frontage is 150 ft. in length, the height of the elevation being 115 ft. In addition to a basement, the ceiling of which is 4 ft. above the street line, the building contains eight stories, the elevation having four ranges of handsome bay windows carried up from the ground floor to the main cornice, together with four ranges of three-light mullion windows to the several floors. There are two principal entrances in Victoria-street, the doorways being 6 ft. in width. At the foot of the seventh floor windows there is some elaborate carving, with a balcony carried across the entire length of the frontage, whilst there is also a profusion of carved work in other parts of the elevation. An ornamental Mansard roof with iron cresting surmounts the upper floor windows and cornice. The Chapel-street frontage, which is architecturally uniform with that to Victoria-street, has a sweep upwards of 200 ft. in length, and contains six ranges of bay windows. The exterior is entirely of Tisbury stone.

Internally, each floor contains nine separate and distinct residences, some of which have four, and others five, spacious apartments, all intended to be decorated. The total number of apartments on the several floors of the building is about 400. Wide corridors on each floor lead to the different tenements, which are so arranged as to be totally distinct from each other. A special feature in the interior finish and fittings of the several apartments is, that there is no plaster used in constructing the internal partition-walls, nor painting of any kind. The walls of each apartment will be faced with highly-polished American wood, whilst the best rooms will be finished in ornamental and fancy panelling. The ceilings will also be in panels, and the only portion of the apartments in which plaster will be used. The vestibules and entrance-halls, as well as the several landings, will be laid with encaustic tiles of various colours. In the centre of the site there is a large open area, from which light is given to several of the apartments in the rear of the building. There are lifts in connexion with each entrance, from which the residents can be at once conveyed to their apartments on any of the upper floors. There are in addition two spacious staircases, leading to the top of the building, which can be used at pleasure. The basement portion of the building will contain large kitchens and cooking-ranges, together with a porter's lift from the basement to the top of the building.

Mr. F. Butler is the architect of the building, which is being erected by a company of proprietors themselves, under the personal superintendence of Mr. Holt, as their clerk of the works. It is stated that there are already applicants for more than the whole of the tenements, and that the rentals will not be less than from 150*l.* to 200*l.* per annum each.

CLEOPATRA'S NEEDLE.

SIR,—I sincerely hope that another and more fitting site will be found in London for the obelisk than the centre of Parliament-square, which really seems to me to fail in every essential requisite for the purpose, as fully demonstrated by the full-sized model there erected.

1. Its own dimensions are dwarfed by the important and lofty buildings around.

2. It interferes with the façades of those buildings, bisecting them unequally from all available points of view.

3. It forms the centre of no street vista at present existing, or likely to be formed.

4. It would there need an artificial foundation, formed by a structure of beams, bearing on the side walls of the Metropolitan District Railway, which runs immediately underneath, to enable it to be placed there at all: *a foundation, therefore, perishable for an imperishable work*, which needs only to be alluded to to show its inappropriateness.

Surely the abstract necessities of a good site for such a monument are:—

1. It shall not antagonise inharmoniously with the leading lines or sky profile of surrounding buildings.

2. That at any rate from some points of view it shall show against the sky or a background of trees, so that its own dimensions may be fully realised.

3. That it have a foundation of a thoroughly permanent character, not likely in any street changes in London to be disturbed or be found inconvenient.

Much is said as to the necessity of choosing a site close to the river, so that long land transport of so great a weight may be avoided. Surely in these days of mechanical skill and contrivance this question could be readily dealt with, and ought not to override the above-named considerations of fitness of site for a monument of such unique character.

I do not notice that a site which seems to me peculiarly fit has been alluded to. I mean in the planted enclosure of Park-crescent, Regent's Park, placing the obelisk central with Portland-place. It will there, in my opinion, satisfy all the above requirements that I have ventured to indicate more fully than in any other position that has been mentioned, and I think that few, if any, better sites can be found in London. The statue which is there at present has no monumental effect, and might be shifted to the Marylebone centre of the Park-crescent enclosure. It has been urged in favour of Westminster and the Embankment that there are to be found sites where passing multitudes may daily see the obelisk. Of the busy tide of London work proceeding daily in those localities, I do not think many persons would be arrested to contemplate the monument, while those amongst us who have interest enough in it to do so, would far prefer a somewhat quieter spot to contemplate it, and to recall the history of this silent record of past ages and departed grandeur.

Commending this suggestion to the consideration of those responsible,—I am, &c.,

CHARLES BARRY.

LARGE SAWS.

SIR,—My attention has been drawn to the following extract from your valuable paper which appeared in the gleanings of the *Birmingham Daily Post*, 27th August, 1877:—

"The *Builder* says a saw 54 ft. long by 18 in. wide, intended for use on large trees in California, has just been turned out of Beaver Falls Steelworks."

Now, sir, this may either be a mistake, or else another specimen of American "talltalk"; but as some of your readers who are unacquainted with the saw trade may be misled by it, and knowing how anxious you are that no misstatements should appear in your journal, I take the liberty of correcting the article. I am myself warmly interested in the manufacture of these band or endless saws, and know from experience that a saw 54 ft. by 18 in. wide would be positively useless, even if made from one piece and properly hardened; and provided that an American firm has "turned out" such a saw, it certainly was never intended for work. I am, however, inclined strongly to doubt the statement that this is the case, for, as far as my knowledge of American saw manufacture goes, I am almost certain that no one of their houses could produce such a large piece of work. Of course, any steel roller could make a number of small pieces, and then weld them into one big sheet; but up to the present, the largest saws rolled from one single piece which have ever been made were manufactured by the most celebrated French house in the trade for the American market, and though these saws (measuring 55 ft. by 12 in. by 8 W. G.) were simply perfect, yet on being tried it was conclusively proved that such gigantic tools were not by any means so useful as smaller ones of about the dimensions of 54 ft. by 4½ in. by 12.16 W. G. These narrower saws, I will guarantee, are capable of cutting more easily through as large trees as any 18 in. saw, such saws having only twelve more inches of steel in width, which not only does no work, but into the bargain hinders the play of the machinery. I have visited contractors and engineers in New York, Chicago, Philadelphia, Cincinnati, Quebec, Ottawa, &c. and every one has agreed with me that with saws of a comparatively small size a larger amount of work can be got through in the time than with the largest tools. Therefore if an American house has by dint of employing all its energy and skill succeeded in producing a saw of such dimensions as those you state, it has simply wasted its time, for, profiting by the experience acquired by older houses from a long series of experiments, it should first endeavour to successfully compete with those older forms in articles fit for use, and not to bring forth an article fit only for exhibition in a show-room. They would then, perhaps, take away part of the trade I am carrying on with their own country in band and handsaws, which I alone send over to them in hundreds and tons respectively.

AD. ARBENZ.

*** Mr. Arbenz's opinion may be quite correct, but they by no means prove that our paragraph was a misstatement.

BANKS OF DEPOSIT.

SEWAGE ACCOUNT.

SIR,—I have read in the *Builder* of vast accumulations of glutinous mud on the shores of the Thames below the sewage outlets. Why not employ the floating fire-engine? At high tide a submerged pipe would disturb it wholesale and send it seaward; it would be beneficial exercise for the engine and men, who seldom have a job at conflagrations.

R. T.

"MODEL LODGINGS."

SIR,—Allow me to call your attention to the "Improved Industrial Dwellings Company's" premises as now erected. I have three rooms and a scullery, for which I pay 8*s.* 6*d.* per week; one of the bedrooms is so small that I cannot get an ordinary bedstead into it, and the other bedroom in some parts you can stand and touch the opposite walls, it is so small. The scullery is so small that two persons cannot pass each other; and my wife, when washing, must put the fire out and put her washing apparatus where the fender ought to be, otherwise the door cannot be opened. The waste water from the sink flushes the water-closet through a pipe which has *neither trap nor bend*, the consequence is that when the lid is on the water-closet the place is filled by a horrid stench. There is but one cupboard in the place; not a door or window fits (doors were put up by piece-work, twelve a day per man). Isolation there is none; a noise four flats off can be heard distinctly when all the doors are shut. During the greater part of the year there is not a single light in the whole place when night comes, and people have to find their way up five stories in the darkness at the risk of breaking their necks, the stone steps being nosed with plain cast-iron. In some of the flats of three rooms there are thirteen persons crowded. Yet these places were built for the *better class of working people*, and pay a *good dividend*.

A WORKING MAN.

CLOSE QUARTERS.

SIR,—You have had no little experience in looking into sanitary affairs in small places, and may be interested in the following:—

I happened to be at Axmouth—a pleasantly-situated village on the south-east coast of Devon—the other day, and inquired of a good woman under whose roof I happened to be taking refreshment, what accommodation there was in the neighbourhood for lodgers. "My dear soul," she replied, in pure West-country lingo, "us be pretty nigh stogged (stuck) right up already. Why, in thickey (that) house next door, for instance, they've only got one chamber, and see what they puts into 'en. There's the man and his wife and two children, and his father and mother and their two gals (one sixteen, the other twelve). They all sleeps in the same room; and then the young man lodger has a bed on the landing at the top of the stairs. And they be pretty well's thick all over hereabouts!" In point of fact, a man and wife and two children contrive to sleep nightly in the same compartment as their children's grandmother, grandfather, and two aunts; whilst a hardworking young labourer, like a good watch-dog, reposes on the landing outside the bedroom

door. The village is a straggling one, about a mile long. It contains, I understand, scarcely a single w.c., and, indeed, hardly a "convenience" of any sort. A brook runs through the place: it is an accommodating medium, for it supplies the inhabitants with water for drinking and domestic purposes, whilst at the same time it goodnaturedly takes all refuse down for them into the sea. Is not all this rustic felicity?

HARRY HEMS.

ARCHITECTS' ACTIONS.

WELLDRIK v. MORRISS.

AN action was brought a few days ago in the Lord Mayor's Court, to recover 15*l.* 3*s.* 7*d.*, balance of 53*l.* 2*s.* 4*d.*, against the defendants, Messrs. Morriss & Co., builders, Old Jewry. It appeared from the evidence that defendants, some time since, conceived the idea of making some skating-rinks on the Continent, and that they asked the plaintiff, who is an architect, &c., in the service of the Board of Works, to furnish some plans, which he did, for Florence, Brussels, and Paris. The defendants then asked him to prepare one for Homburg, and it was to recover money for the plan and travelling expenses that the action was brought. It appeared from the particulars that 10*l.* 10*s.* was charged for the plan, being at the rate of 5*s.* per hour for forty-two hours, which was stated by the plaintiff and his witnesses to be a moderate charge for such a plan. It was on thin drawing paper, in order to be sent by post.

For the defence it was contended to be an exorbitant charge, although it was not denied that former plans, charged on the same principle, had not been questioned. Three architects and one civil engineer were called as witnesses, who agreed in stating that from four to five guineas would be a liberal remuneration for drawing such a plan.

After a careful summing up by his lordship to the jury, they, after a short consultation, gave a verdict for the plaintiff for the full amount claimed.

"CEMENT KILNS."

SIR,—With reference to the letter which appeared in your issue of the 1st inst., and to which my attention was directed this morning, let me say Mr. May appears not to be aware that the holes for charging and ventilating Mr. Johnson's patent chambers from the top were included in a patent bearing my name, and dated last December; also that both Mr. Johnson and I have now for some time drawn the heated gases from the lowest possible point in the chambers.

V. DE MICHELE.

MOULSHAM HALL, CHELMSFORD.

THE members of the Essex and Chelmsford Museum met a few days ago at Moulsham Lodge, on the invitation of Mr. Herbert Marriage, to hear a paper by him on the old Mildmay estate, and to make a peregrination over the surrounding grounds, and view the sites at the once famous Moulsham Hall (the ancient seat of the Mildmays). The Hall stood on a rising ground, with two wings, and surmounted by three statues representing Apollo, Diana, and Mercury, two of which are now in Mrs. Rasch's possession at Woodhill, Danbury. The Hall was built by Thomas Mildmay, about 1564, soon after he had obtained grants of this and neighbouring manors from Queen Elizabeth. It was rebuilt with greater magnificence about 1730, by Benjamin Mildmay, Earl Fitzwalter, from designs by Leoni, the eminent Italian architect. It was abandoned and pulled down about 1812. Its brief existence demands explanation. At this period the Government, to oppose the expected invasion of Napoleon, constructed a line of batteries,—some on this farm, one in Batteryfield, and another still clearly marked by the mounds adjoining the union-house. These, with the proximity of the soldiery, to the number of 2,000, quartered in Barrack-lane (Wood-street), caused Sir Wm. Mildmay to declare that his house and domain were rendered unendurable. The building was consequently pulled down, and it is said that the government made a grant of 1,000*l.* per annum for the damage thus sustained. Mr. Marriage's grandfather came to the farm in 1807, and the hall was razed five years afterwards. One of the men now at work on the farm remembers his father taking out the foundations, and finding upon a large stone block the arms of the Mildmay family, looking as fresh as if recently painted, but next morning the exposure to a damp atmosphere had destroyed the colours. The foundations were so strongly welded together by the superior mortar of those days that many large blocks could not be separated, and had to be sunk into trenches dug by the sides, the ploughshare occasionally grating on the hard substance at the present day.

Death of a Railway Engineer.—The death is announced of Mr. E. Wilson, consulting engineer to the Great Western, Great Eastern, and Metropolitan Railways, and to many Irish lines.

VARIORUM.

THE new number of "Picturesque Europe" (19) contains some capital engravings illustrative of the country which has just now been visited by the British Archæological Association,—the view from Castle Dinas Bran; Valle Crucis Abbey; the Torrent Walk, Dolgelly; Harlech Castle, and others. The walk to Dinas Bran is thus spoken of,—"To visit Dinas Bran you start from Llangollen. Humming the air of "Sweet Jenny Jones," which the harper has been playing in the passage of the Hand Hotel while you had your lunch, you stroll from out the cool shade of the hotel garden into the clean, sunbright streets of the white little town, and you soon reach the point from which the miniature ascent begins. When we started, soft, tender, grey cloudlets—like the poutings, the half-affected little tempers, of a pretty and wayward woman—veiled the burning sun, and we began slowly to mount the easy winding path which leads gently up, some thousand feet, to the ruin. A little, blessed breeze begins to stir, and we commence our petty climb in comparative coolness; but the blaze of full summer glory shines out again as we slowly mount, and the heat returns. The "sacred Dee" glistens brightly in the blinding glare; below, in the lovely, peaceful vale of Llangollen, you see that there is shade beneath the trees; but, as we walk on, the gentle cloud-veil again spreads between us and the too-brilliant sun. As we rise higher and higher, we find that our ruin-crested summit stands in the very centre of "all the circles of the hills." On one side the limestone hills are bare and barren, but elsewhere there are green hills, often hedge-divided up to their very tops. A few more steps and you are among the relics of Dinas Bran. Rude, amorphous lumps of rubble project all around you from out the hill's soft crest. They are suggestive, but very vague. All the ashlar has long disappeared, and every moulding is gone.——In the September number of the *Gentleman's Magazine*, Mr. T. Adolphus Trollope gives a frightful picture of the condition of Naples, in describing the underground holes in which thousands of its inhabitants dwell, brutalised, and the *Camorra*, a systematised institution which permeates society there, pillages and tyrannises over it. If the picture be correct, Naples is, indeed, not only a mass of social rottenness fatal to itself, but also a pregnant source of danger to Italy generally.——The Eleventh Annual Report of the Warden of the Standards (1877), just published, says,—"To meet the requirements of modern science a balance is needed by which the weights of bodies may be determined most accurately and quickly. Professor Mendeleef, of St. Petersburgh, and Herr Bunge, Mechanicus, Hamburg, have shown that it is possible to weigh quickly and accurately by the use of a balance whose beam has much shorter arms than those now in general use. A practical test of the relative merits of a beam with long arms and of one with short arms has been made in this Department. By this test, as well as from the mathematical consideration of the question, it has been ascertained that whilst the probable error of a weighing made with the short-arm balance is slightly greater than the probable error of a weighing made with the long-arm balance, yet a weighing by the long-arm balance occupies twice as much time as one made with the short-arm balance. Consequently, great economy of time is obtained by the use of a short-arm balance. Only those, as chemists, physicists, inspectors of weights, &c., who have sat for hours watching the motion of a pointer moving slowly over a balance-index, can fully appreciate this economy of time."——The current number of *Cassell's Family Magazine* is a good one. The serial story, "Paul Knox, Pitman," keeps up in interest. We take a paragraph from a sensible paper, "On Choosing a House":—"Before you enter a house that you have some thoughts of taking, do not fail to take a look, not only at the exterior thereof, but at the neighbourhood around it. Do not, however, be too much struck with a showy outside; the place may be but a whited sepulchre after all—a very living grave. The house, too, may be in itself, both outside and in, everything which heart can desire, but after all it may be situated in the vicinity of other houses, either at the back or front, the conduct of the inmates of which may render your life wretched. Your rooms may be furnished with taste and comfort, but if you are awakened every other night by the sounds of drunken revelry, or mayhap fighting and squabbling, your life will not be a very romantic one, to say the least. Again, however tastefully your garden may be gotten up, however shady and cool your summer-house, the sound of voices in altercation, or perhaps oaths and swearing, floating over the adjoining wall, will detract materially from the pleasure you derive from the society of a friend or favourite author. Having satisfied yourself regarding externals, it will be time now to have a peep inside, and the very first thing it is your duty to find out is whether or not the house be damp or dry. Nothing can be more injurious to the health than residence in a house which is damp; coughs and colds, aches and pains and rheums—ay, and maybe fever itself—must be your portion if you are unwise enough to live in a damp house; and, granting even that you have the strongest of constitutions, dampness will sap it, your nerves will be weakened, you shall find yourself ill and fretful without being able to assign a cause therefor. Avoid a damp house, therefore: you can hardly fail to know if it is damp. Suspicious spots of mildew about the paper beading on unpapered walls, and a generally moist smell, must guide you in your diagnosis. More deadly even than damp are the emanations from drains and cesspools and noxious gases, such as sulphuretted hydrogen and carbonic acid. If you mean to live for any length of time in a house, it will be much better to put the matter into the hands of a trustworthy surveyor, and let him see to this matter."

Miscellanea.

An Art Cabinet.—Praise is due for an art cabinet, in ebony and bronze, designed, modelled, and executed by Mr. Charles Green, sculptor, Sheffield, in which town it is now being exhibited. Mr. Green has long been honourably associated with the designs produced by principal manufacturers of ornamental cast metal work in the large towns of England, as well as in Scotland, and throughout the kingdom generally. This cabinet has been the result of six years' patient and careful labour, and has cost him upwards of 2,000*l.* The cabinet is designed in the Italian style of the fifteenth century. It illustrates three materials, bronze, ebony, and (in the internal fittings) mahogany. Its conceptions comprise four panels of the seasons, four panels of the elements, twelve signs of the Zodiac, and one panel of the world. The base contains eleven lions' heads clipping a string course of oak and bolted cable, emblematical of strength and support to the entire structure. Surmounting the base and supporting the surbase are six bronze pillars, each decorated with festoons of laurel characteristic of fame, the above being decorated with a stringcourse of ivy entwined with ribbon binding the base and the body of the cabinet together. In the front are three drawers with six handles decorated with laurel. In the centre, above the base, is the panel of winter, represented by a child asleep amongst the bulbs and roots of the earth, denoting that all vegetation is at rest, the exterior being decorated with winter foliage, holly, and mistletoe. In the centre is the panel of spring, represented by a figure of joy bursting forth to welcome the coming year, and is surrounded up each side by groups of spring flowers. The two other spandrels represent the first appearance of insect life. On the left is the panel of summer, represented by a figure engaged in haymaking. On the right of spring is the panel of autumn, represented by a figure of welcome. On the right-hand side of the cabinet is the panel representing fine arts, in the centre being the portraits of Phidias and Apelles. Underneath is a panel representing the artist's tools. At the other end, on the left-hand side, is a panel illustrating "Music and Poetry," in the centre being the heads of Apollo and Homer; at the bottom is the head of Minerva representing wisdom, and at the top a heart emblematical of the artist's heart in his work. It will be exhibited in the French Exhibition, where room has been allotted to it by the Commissioners.

Archæological Meetings.—In addition to the archæological societies whose proceedings are noticed in this week's *Builder*, we have to record that the Yorkshire Archæological Association held its annual excursion on the 29th ult., visiting Bolton Abbey and Skipton Castle. The Bristol and Gloucestershire Archæological Society also held a three-days' meeting in Cirencester and neighbourhood on the 28th ult. and two following days. Some details of these gatherings are necessarily postponed until our next.

Rock-work.—The proper and artistic arrangement of artificial rock-work is a matter which demands some care on the part of the operator; nothing is more easy than to pile a few large blocks of some rough material one upon the other, and call the resulting heap "rock-work," which it certainly is not. But if properly constructed, artificial work of this description is very picturesque. The most suitable material for this kind of work is, of course, natural rock. A few large, rough blocks of stone, properly arranged, will produce a far more pleasing effect than the most elaborate construction of artificial materials, and should always be used in preference; but as these are not always obtainable, the roughest and most suitable lumps of a material which most nearly resembles stone in its outline and texture should be selected. One of the most readily obtainable substances which is adapted for this purpose is the large rock-like mass often found in the centre of large stacks of bricks after burning, and which is formed by the partial fusing of the clay. These masses are known in the trade as "burrs," and may be procured at a cheap rate in almost any brickfield. In selecting them for this purpose, only those pieces in which all the shape of the brick is destroyed should be used, as nothing is more destructive of natural effect than to see part of a moulded brick projecting from a group of ferns or flowers. By way of variety a small quantity of broken fire-clay obtained from gas or glass works, and consisting of the fragments of retorts, and the pots in which the glass is boiled, may be used; while the addition of a quantity of chalk will be a further improvement. As we before remarked, all formal shapes must be destroyed, and only the accidentally fractured portions exposed to view. A large heavy hammer should be used, and the material broken up so as to make it irregular.—*From "Cassell's Household Guide."*

A Piece of Work at St. Alban's.—Workmen are busily excavating the floor of the nave, and around the bases of the great piers of the south arcade; these latter spaces have been filled with concrete as a preparatory measure to the erection of the ponderous trusses and shoring with which it is intended to lift off the roof. *The Standard* says,—"We understand that at the junction of the Early English work of Abbot Trumpington with that of the Decorated of Abbots Hugh de Eversden and Richard Wallingford, the roof will be severed, and by means of powerful screws the western portion, about 120 ft. long, lifted off the walls. The next proceeding, after centring all the arches with massive timbers, will be the critical one of forcing the whole mass of Trumpington's work, the triforium and clearstory, with all its beautiful arcades, to an upright position. As this wall now leans over 2 ft. 4 in. towards the south, and is upwards of 80 ft. in height, much anxiety is manifested as to the success of the undertaking. Iron ties from north to south will be inserted in two tiers through the spandrels, with coupling screws in the middle, as were so successfully used in repairing the great central tower; the three tiers of raking shores already in position will be added to considerably, and four hydraulic rams will be used simultaneously with powerful screw-jacks and other mechanical appliances to move the great mass. Raking shores will be applied inside the building at every vantage point, and two enormous horizontal trusses, the whole area of the section of the nave under repair, will be placed at the heights of 30 ft. and 50 ft. respectively, in order to regulate the distance to which the arcading is to be forced. Every precaution is being taken to render the bold undertaking a successful one. After the wall has assumed its upright position, the roof will then be lowered on it in its proper place, and meanwhile four flying buttresses will be constructed to keep up the work so moved."

Competition: Westwood.—The Medomsley School Board (county Durham) having advertised for plans of school and master's house, to be erected at Westwood, within their district, received nineteen competitive designs, and awarded the first premium to Mr. Fox, of Durham; the second, to Messrs. S. Oswald & Son, of Newcastle; and the third, to Mr. Oliver, of Newcastle.

Eltham Palace.—Attention is called to Eltham Palace Hall. "The roof is in extreme need of repair," and it is urged that "the men of Kent subscribe to restore not only the roof, but also the whole building, including the windows now bricked up on one side."

London Workmen and the Paris Exhibition.—A meeting of working men was held on the 29th ult., in the Lecture-hall, Strand, to consider the arrangements in connexion with the proposed visit to the Paris Exhibition next year. Mr. Hodgson Pratt presided. There were present a large number of representatives from the various workmen's clubs and institutes throughout the metropolis. The Chairman, in opening the proceedings, said that one of the objects of the present meeting was to consider a proposal of a French tradesman, long resident in London, who was willing to provide accommodation in Paris for the English working men. He had, in fact, offered to provide any member of a club, co-operative or trade society, with a week's accommodation in Paris, a second-class return ticket, an omnibus to convey the visitors to and from the Paris railway station, a breakfast consisting of tea or coffee, with eggs, fish, or ham, and daily free admission to the Exhibition, for 3*l.* 15*s.* Mr. Olliver thought a considerable saving would be effected by taking a third-class ticket. He had a strong objection to go into such barrack-like buildings as those they were sent to ten years ago. He thought the sum excessive, as only five days were, in reality, spent in Paris. Mr. Cremer also considered the charge exorbitant. After further discussion, a committee was appointed to make arrangements for English working men to visit the Exhibition.

National Freehold Land Society.—At the half-yearly meeting of this society, on the 31st ult., the statement of accounts submitted for the six months ended July 31st showed that the entire receipts for that period, including balance in hand on the 31st of January (11,518*l.* 9*s.* 6*d.*), amounted to 846,328*l.* 0*s.* 3*d.* Of this sum, the subscriptions to the society amounted to 327,516*l.* 7*s.* 2*d.*, while the sum received for the surveying of property came to 1,516*l.* 13*s.* 11*d.*, and entrance-fees amounted to the sum of 334*l.* 12*s.* On the expenditure side of the accounts the sum of 271,682*l.* 1*s.* 7*d.* appeared as withdrawals; advances, 394,152*l.* 10*s.*; British Land Company, 24,216*l.* 12*s.* 8*d.*; deposit account, 121,000*l.*; interest on completed shares, 15,837*l.* 5*s.* 5*d.*; and sundry expenses, 3,331*l.* 17*s.* 4*d.* The report was adopted.

Homes for Working Girls in London.—Mr. John Shrimpton, of 5, Brunswick-place, Regent's Park, calls attention to a serious defect in the social economy of the metropolis. He says:—

"Any one walking through our metropolis in the evening must be sadly impressed with the need for immediate steps being taken to rescue this class [working girls] from the contamination of bad company and immoral influences. The condition of thousands of these working girls after seven or eight o'clock in the evening, when most of them leave their work, should call forth our intense sympathy, as it is no uncommon thing to learn that they have 'no homes to go to,' and thus are compelled to live in the common lodging-houses, the influences of which all inhabitants of London know are terrible. Girls' institutes do not meet the requirements of these working girls. They need homes based upon the principles of our 'Homes for working boys in London,' and the fact of such being so popular and so warmly appreciated, confirms the like requirements for our working girls."

Miss Emily Faithfull writes in support of the establishment of such homes.

An Old Suggestion Revived.—Mr. R. Edwin Robinson, writing to the *Echo*, suggests "the introduction of sea-water from Brighton to London, either along the railway-line, under the 6-ft. way, or by the high road (but little more than fifty miles), which could be readily conveyed in iron pipes of about 3 ft. diameter, carried under the roadways, with pumping-stations and reservoirs about every ten miles. The first great object would be to erect large swimming and other baths, in convenient positions, in the midst of all the great centres of population, the overflow from which would flush all the great sewers, and, being sea-water, thus disperse and carry off that foul and fœtid vapour which issues daily from every gully in the streets, and is the most fruitful source of half the diseases from which we suffer."

Castleford Improvements.—At a meeting of the Castleford Local Board, held on Thursday, the 30th of August, Mr. Malcolm Paterson, C.E., of Dewsbury, was appointed as engineer, to design, carry out, and apportion the cost, if necessary, of the works required in the private improvements of Castleford; consisting of the drainage, forming, metalling, curbing, and paving, of about sixty streets. This work, which experience has proved to be of urgent necessity, will form the complement of the main drainage and public street improvements of the district, now being carried out under Messrs. Paterson & Wheater.

Norwood.—The memorial stone of St. Andrew's Presbyterian Church, Upper Norwood, was recently laid. The style adopted by the architects, Messrs. Edward Power & Wheeler, is an adaptation of French Gothic of the fourteenth century. The church will be divided into a nave with side aisles; the columns marking off this division are of granite on Portland bases. There are to be two entrances to the church—the main one being in Western-street, and the other in Church-road—and the church will have its principal frontage towards the former road. The principal frontage will have Kentish rag facings with Bath stone dressings. Above the centre doorway will be a three-light window, which will form one of the main features of the front elevation. A tower and spire, 120 ft. high, are also to be erected on the north-west side of the church in Western-street, in which will be provided an entrance to the gallery, and also to the ground-floor. Accommodation is to be provided on the ground-floor for about 653 persons, and in the gallery there will be about 130 seats, thus making a maximum total of 780 seats. In the rear of the church will be situated the lecture-hall, vestries, and usual offices. The builders are Messrs. Aitchison & Walker; and the total cost will amount to about 6,900*l.*

A Grievance Removed.—We alluded a few weeks ago to the agitation which has been going on for some months past amongst the married members of the City of London police force with the object of having rescinded the regulation which obliged them to live within the boundaries of the City, on the ground that it was impossible for them to obtain in the City, at a reasonable rent, adequate accommodation for themselves and their families. For some time Col. Fraser, the Chief Commissioner, refused to grant the concession asked for, but subsequently he obtained through the divisional inspectors the views of the men, which amounted to this,—that they asked to be allowed to live within a mile radius of the City boundary. We now learn that on the 1st inst. an order issued by Major Bowman, Assistant Commissioner, in the absence of Colonel Fraser, was read to the men of each division drawn up on parade, to the effect that married constables could, by application to the Chief Commissioner, live within a mile radius of the City boundary all round. Much satisfaction was expressed by the constables whom this order affected, and who number about 400, or half the strength of the City police force.

Statues for French Exhibition Building.—A series of original statues, each representing one of the exhibiting nations, is to decorate the façade of the building on the Champ de Mars. The commissions for these have been given. M. Allard is intrusted with the statue emblematical of England, M. Cugnot with that of British India, and M. Roubeaux with Australia; the rest are to be executed by well-known sculptors. The sum to be paid for each is 4,000 francs, so that the series of twenty-one will amount to 84,000 francs. The sculptural decorations will form a remarkable feature of the Exhibition. Besides the statues above mentioned, there are to be six large works, which are to be devoted to the great divisions of the world, and as these only number five, America will have two subjects, North and South.

Competition Designs: Proposed Covered Markets, Southport.—In answer to the advertisements, twenty-five designs have been received. They are under the consideration of the Markets Committee, and will be open to public inspection in the large room of the Town-hall after the committee have decided upon the three best designs.

New Mansion, Lydney Park, Herefordshire.—A new mansion, for the Rev. W. H. Bathurst, has recently been erected in Lydney Park, Herefordshire. It is Elizabethan in style, and is constructed of Painswick stone, rock masonry, from the plans of Mr. C. H. Howell, architect, London, the builders being Messrs. Wingate, of Gloucester.

TENDERS.

For Primitive Methodist Church and Schools, Prince's-road, Liverpool. Mr. Richard Owens, architect:—

Webster	7,300	0	0
Thornton & Son	7,270	0	0
Rey	7,033	0	0
Hall & Owen	7,025	0	0
Urmson	6,984	0	0
Chappell	6,887	0	0
Black & Toul	6,687	0	0
Nicholson & Ayre	6,639	0	0

For new road and sewers at Forest-hill, for Mr. G. T. Congreve. Mr. E. Witts, surveyor:—

Curtis & Ross	£1,065 0 0
Rutty	950 0 0
Woodham Bros.	840 0 0
Pearce	820 0 0
Harris (accepted)	794 0 0

For warehouse, at Atherstone, for Messrs. Bourne & Sale. Mr. William B. Tomlinson, architect:—

Norton	£1,995 0 0
Fox Bros.	1,978 0 0
Spencer (accepted)	1,888 10 0

For the supply and erection of new purifiers, lifting gear, and other works, at Shoeburyness Gas Works, for the War Department:—

Chandler & Sons (accepted).

For water supply for the parish of Kingswood, Gloucestershire, for the Dursley Rural Sanitary Authority. Messrs. James Payne Curtis, C.E.:—

Bloodworth	£904 10 0
Terrett Bros.	835 10 0
Fountain & Boyd	824 4 0
Simmonds	757 10 0
Williams	742 10 0
Munro (accepted)	725 0 0

For the erection of shops and offices, corner of London-wall and Moorgate-street, E.C. Mr. William Bradbear, architect. Quantities by Messrs. Lamb & Church:—

	Tisbury stone.	Bath stone.
Sabey & Son	£20,439	£19,339
Rider & Son	19,190	18,980
Sewell & Son	18,773	18,000
Higgs & Hill	18,670	18,300
Ashby Bros.	17,432	16,832
Dove Bros.	17,350	16,650
Downs & Co.	17,250	16,630
Perry & Co.	16,992	16,372
Merritt & Ashby	16,777	16,177
Newman & Mann	16,712	16,162

For Primitive Methodist Chapel, Glascote, near Tamworth. Mr. John Wills, architect:—

Mottram (accepted)	£709 0 0

For Wesleyan School, Castle Donington. Mr. John Wills, architect. Quantities supplied:—

Gilbert (accepted)	£720 0 0

For Methodist New Connexion Chapel, School, &c., Birrley Carr, near Sheffield. Mr. John Wills, architect. Quantities supplied:—

Curtis (accepted)	£1,389 0 0

For Primitive Methodist Chapel, Damesham, Salisbury. Mr. John Wills, architect:—

Dibbin & White (accepted)	£248 10 0

For public-house, West-hill, Hastings, for Mr. H. Nash. Messrs. Jeffery & Skiller, architects:—

		Party Wall.
Parks	£1,551 0 0	£41 9 0
Vidler	1,524 0 0	42 0 0
Harman	1,447 0 0	41 0 0
Woodall	1,395 0 0	42 0 0

For house and shop, in Mann-street, Hastings, for Mr. John Smith. Messrs. Jeffery & Skiller, architects:—

Harman	£589 0 0
Vidler	582 10 0
Picknell	570 0 0

For parsonage, at Kite's-nest, Hastings. Mr. H. Carpenter, architect:—

Howell & Son	£1,779 0 0
Vidler	1,694 0 0
Eldridge	1,690 0 0
Coussens	1,676 0 0
Womersley	1,660 0 0
Harman	1,655 0 0

For offices for the Dorking Gas Company, Dorking. Messrs. Fredk. Bargman & H. S. Benison, architects:—

Putney	£677 15 0
Haselgrove	667 12 0
Goddard & Sons	667 10 0
Edser	649 10 0
English	581 3 3
Hamblin Bros.	554 0 0
Lyan & Dudley	498 0 0
Shearburn	486 5 0

For alterations, additions, and decorative works, for Mr. H. Burkinyoung, at 85, Cornwall-gardens, Queen's-gate. Mr. H. H. Collins, architect:—

MacIntosh	£1,184 0 0
Battam & Heywood	1,085 0 0
Marolds	1,061 16 0
Vernall & Griffiths	962 16 0
Poole (accepted)	957 5 6

For building new offices at 118, Bishopsgate-street, for Mr. H. Page. Mr. H. H. Collins, architect. Quantities supplied by Messrs. Batstone Bros.:—

Hayward	£8,593 0 0
Mark	8,485 0 0
Kirk & Randall	7,962 0 0
Browne & Robinson	7,883 5 0
Ashby Bros.	7,638 0 0
Abraham	7,420 0 0
Ashby & Horner	7,383 0 0
Waldram & Co.	7,350 0 0
Scrivener & White	7,320 0 0
Nightingale	7,287 0 0
Bayes Bros. & Allen	7,293 0 0
Brass	7,175 0 0
Newman & Mann	7,000 0 0
Merritt & Ashby	6,983 0 0

For alterations at the Seven Sisters' Tavern, Page-green, Tottenham, for Mr. Oddy. Mr. Edward Brown, architect:—

Marr	£498 0 0
Linzell & Son (accepted)	383 0 0
Chapman	380 10 0
Simmons	355 0 0

For additions to Oakfield House, Norwood, for Mr. Owen. Mr. E. R. Blatchley, architect:—

Colls & Sons	£936 0 0
Croaker Bros.	910 0 0
Stimpton & Co.	890 0 0
Paull	871 0 0
Downs & Co.	819 0 0
Garnham	798 10 0

For the erection of a warehouse, London-wall, for Mr de Costa Andrade. Quantities supplied by Messrs. Curtis & Sons:—

Ashby Bros.	£7,093 0 0
Brown	6,900 0 0
Scrivener & White	6,819 0 0
Newman & Mann	6,686 0 0
Brass	6,583 0 0
Morter (accepted)	6,543 0 0

For rebuilding No. 4, Golden-lane, St. Luke's, for Messrs. M. & N. Salaman. Mr. Benjamin Tabberer, architect. Quantities by Messrs. Franklin & Andrews:—

Braid & Co.	£2,650 0 0
Boyce	2,595 0 0
Mark	2,548 0 0
Crabb	2,520 0 0
Bracher	2,320 0 0
Lawrence	2,256 0 0

For the erection of a lodging-house for workmen, at Chesterfield, for the Midland Improved Industrial Dwellings' Association (Limited). Mr. George R. Isborn, architect. Quantities supplied:—

	For the building having 4 floors.	For the building with 3 floors only.
Marriott	£5,223 19 10	£4,474 2 2
Bell & Son	5,100 0 0	4,500 0 0
Wood, Geo. & Son	5,000 0 0	4,285 0 0
Bakewell	4,850 0 0	4,107 0 0
Hodson & Facon	4,814 0 0	3,938 0 0
Dennett & Co.	4,610 0 0	3,933 0 0
Wood, John	4,570 0 0	3,890 0 0
Hind	4,437 0 0	3,817 0 0
Clubley & Stringfellow	4,352 0 0	3,702 0 0
Stevenson	4,344 0 0	3,656 0 0
Wood (accepted)	4,300 0 0	3,630 0 0

For warehouse in Fairfax-street, Bristol. Mr. H. Williams, architect. Quantities supplied:—

Kidner	£5,696 0 0
Trout	4,525 0 0
Krauss	4,486 0 0
Baker & Sons	4,380 0 0
Thompson	4,372 0 0
Howell	4,300 0 0
Heal	4,215 0 0
Brock & Bruce	4,100 0 0
Stevens & Gardener	3,975 0 0
Bevan & Sons	3,950 0 0
Stamp, Phillips, & Jefferies	3,944 0 0
Stephens & Bastow	3,899 0 0
Veals	3,894 0 0
Davies	3,845 0 0
Crocker	3,508 0 0
White	3,500 0 0

For converting warehouse into stables, &c., at Cornwallis-street, Hastings. Mr. W. H. Murray, architect:—

Vidler	£240 0 0
Eldridge	178 0 0

For new bank at Salisbury. Mr. H. Hall, architect. Quantities supplied:—

Krauss	£4,089 0 0
Sanders	3,894 0 0
Young	3,866 16 0
Stephens & Bastow	3,863 0 0
Crook	3,694 0 0
Hall & Sons	3,642 0 0
Sawkins	3,638 9 0

TO CORRESPONDENTS.

Miss K. D.—W. R. T.—F. D.—J. G.—E. L. B.—M. P.—P. S. *Melbourne.*—Dr. P.—R. T.—E. S. R.—J. P.—S. C.—T. W. W.—B. & M.—W. B.—J. W. S.—W.—H. S.—Curio.—C. R.—W. B.—L. W.—S. C.—G. E. L.—B. & S.—W. C.—B. & Co.—W. L. (see our previous volumes).—C. & Sons (should send list and amount of tenders).—*Justice* (should take advice on the spot).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

Advertisements cannot be received for the current week's issue later than **THREE** o'clock p.m. *on THURSDAY.*

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